



ENVIRONMENTAL AND SOCIAL ASSESSMENTS - SUGHD DRAFT VERSION

PROJECT STRENGTHENING RESILIENCE OF THE AGRICULTURE SECTOR
Feasibility Study – Business Plan – ESIA / Detailed Design /
Cost Estimate for three ALCs and Supervision of works

Phase 1: Feasibility Study

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List of abbreviations and acronyms

SRASP	Strengthening Resilience of the Agriculture Sector Project
ALC	Agro Logistics Center
ARAP	Abbreviated Resettlement Action Plan
CC	Civil Code
COVID-19	Coronavirus disease 2019
CCA	Community Collaborative Agriculture
DDR	Due Diligence Report
DMS	Detailed measurement survey
DSEI	Draft Statement of Environmental Impact
EA	Executing Agency
EHS	Environmental, Health and Safety
SI AED	State Institution «Agriculture Entrepreneurship Development»
EHSB	World Bank Group Environmental, Health and Safety Guide
EIA	Environmental Impact Assessment
ES	Environmental Specialist
ESA	Environmental and Social Assessment
ESIA	Environmental and Social Impact Assessment
ESF	World Bank Environment and Social Framework
ESMF	Environmental and Social Monitoring Framework
FEZ	Free Economic Zone
ESMP	Environmental and Social Management Plan
ESS	World Bank Environmental and Social Standard
FAO	Food and Agriculture Organization of the United Nations
FS	Feasibility Study

GBV	Gender-based violence
GHG	Greenhouse gas
GOT	Government of Tajikistan
GRM	Grievance Redress Mechanism
H&S	Health and Safety
HH	Household
ICT	Information and Communication Technologies
IFIs	International financial institutions
IP	Indigenous Peoples
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Plan
IR	Involuntary Resettlement
LAR	Land acquisition and resettlement
LC	Land Code
LMP	Labor Management Procedures
MOA	Ministry of Agriculture
MOLME	Ministry of Labour, Migration and Employment
MHSPP	Ministry of Health and Social Protection of Population
MSME	Micro, small and medium enterprises
NGO	Non-Governmental Organization
OHS	Occupational Health and Safety
OP	Operational Policy
PAP	Project Affected Persons
PCB	Polychlorinated biphenyl
PCR	Physical Cultural Heritage

PIU	Project Implementation Unit
PMP	Pest Management Plan
POM	Project Operations Manual
PPE	Personal Protective Equipment
R&D	Research and Development
RAP	Resettlement Action Plan
REDP	Rural Economic Development Project
RPF	Resettlement Policy Framework
RT	Republic of Tajikistan
RWG	Regional Working Groups
CEP	Committee for Environmental Protection under the Government of the Republic of Tajikistan
SEA/SH	Sexual exploitation and assault/sexual harassment
SEE	State Environmental Expertise
SEI	Statement on Environmental Impact
SEP	Stakeholder Engagement Plan
SIA	Social Impact Assessment
SS	Social Specialist
TA	Technical Assistance
TAAS	Tajik Academy of Agricultural Sciences
TAU	Tajik Agrarian University
TOR	Terms of Reference
TOT	Transfer of Technology
USD	United States Dollar
TS	Tajik somoni
WB	World Bank

WBG	World Bank Group
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Executive summary

This Environmental and Social Impact Assessment (ESIA) report focuses on the construction of the Agro-logistic center for Sughd Region FEZ. The purpose of this ESIA study is to fulfill the regulatory requirements set by the Republic of Tajikistan and adhere to the Environmental and Social standards of the World Bank.

Project Background

The vulnerabilities of Tajik agriculture have been exposed by COVID-19, resulting in significant negative effects on food security and nutrition. Although the impact on agricultural production in 2020 was somewhat lessened as farmers had already obtained necessary supplies before the outbreak, it is anticipated that the adverse impact on 2021 production will be much greater. The Government of Tajikistan (GoT) faces limited fiscal resources, which have been further diminished due to the COVID-19 crisis, making it challenging to provide emergency assistance and improve agricultural services without external support. Moreover, the GoT lacked real-time information on food stocks and cropping areas during the pandemic, impeding their ability to respond effectively to the crisis and worsening the negative effects on food and nutrition security. To address these challenges, the GoT is initiating the proposed Strengthening Resilience of the Agriculture Sector in Tajikistan Project.

The primary objectives of the project are to enhance the agriculture sector's ability to withstand crises, improve domestic food security, strengthen the foundation for increased production and competitiveness in the horticulture sector, and enhance the Ministry of Agriculture's and other relevant public institutions' capacity for early warning, preparedness, and crisis response. Additionally, the project aims to support the development of viable micro, small, and medium enterprises (MSMEs) in rural areas and generate employment opportunities in regions with limited alternatives.

To achieve these goals, the project will concentrate on three main areas: increasing the availability of improved seeds, seedlings, and planting materials suitable for Tajikistan's diverse agro-ecological conditions; improving farmers' and agri-businesses' access to quality agro-logistic services; and strengthening crisis management capabilities, including

early warning systems, preparedness, and response capacity of selected public institutions.

The project will be implemented nationwide, with plans for agro-logistic centers in Khatlon, Sughd, and Dushanbe regions. These locations were selected based on their agricultural potential, production patterns, and proximity to major urban markets, particularly in the case of Dushanbe. The project will primarily focus on the horticulture sub-sector.

Project Overview

The project aims to enhance agricultural services and develop high-value horticulture value chains in Tajikistan. It will strengthen extension services, improve access to inputs, and promote the cultivation and marketing of high-value crops. Activities may include training programs, demonstration plots, and financial support for farmers. Collaboration with stakeholders and prioritizing gender and social inclusion are also important. Overall, the project aims to improve food security, increase incomes, and promote sustainable agriculture in Tajikistan. The project consists of three components

Component 1: Strengthen Seed Systems Objective: Develop resilient and vibrant seed systems that provide locally adapted, farmer-preferred, and affordable seeds, seedlings, and planting materials.

Component 2: Support Investments in Agro-Logistical Centers for Horticulture Value Chains aims to enhance horticulture value chains and improve their competitiveness. It includes supporting the development and operation of three Agro-Logistical Centers (ALCs) and capacity building for their management. This component aims to strengthen Tajikistan's food distribution network and promote resilient food systems, market linkages, quality standards, and food safety.

Component 3 aims to strengthen public capacity for crises prevention and management in agriculture. It focuses on real-time monitoring of agricultural production, agrometeorological information services, soil fertility management, and crop protection and locust control. The component consists of four subcomponents:

1. Real-Time Monitoring of Agricultural Production
2. Agrometeorological Information Services for Farmers
3. Soil Fertility Management
4. Crop Protection and Locust Control

Investments for each subcomponent include staff capacity building, consulting services, equipment, and operating expenses. This includes activities such as developing pest monitoring protocols, acquiring laboratory equipment, and collaborating with the Central Asia locust control project implemented by FAO.

Analysis of Project Alternatives

Various alternatives were analyzed as part of this ESIA including the 'No Project' option and project alternatives. These are summarized below.

'No-Project' option was rejected because without the agro-logistic centers, the following benefits would be lost:

1. Decreased availability of improved seeds, seedlings, and planting materials, leading to

diminished crop yields and overall reduced productivity in the agricultural sector.

2. Limited access to essential agro-logistic services like storage, transportation, and processing facilities, resulting in significant post-harvest losses for farmers and a decline in their profitability.

3. Weakened crisis management capacity due to the absence of early warning systems, preparedness, and response mechanisms during agricultural crises. This would leave the agriculture sector vulnerable and less resilient in the face of unforeseen challenges.

Project Alternatives: Several options were considered for agro-logistics center construction:

- Use existing infrastructure, but expansion and optimization may be limited.
- Outsource logistics services, but control and service quality may be compromised.
- Improve existing systems, but it may require significant investment and time.

Alternative locations

Three potential sites near the city of Khujand in the Sughd region were evaluated for the establishment of an Agro Logistics Center to serve the region.

The first plot situated in the vicinity of Somgor village in the Bobojon Gafurov district, in the territory of the expansive "National Garden" spanning 600 hectares. Situated just 20 km from Khujand, adjacent to the agricultural lands of MMK Agro LLC, this location was considered for the establishment of an agrological center. However, the proposal was rejected by consultants due to the environmental impact it would have caused, as it would have required the felling of trees and endangered the biodiversity of the area.

The next proposed site for the agrilogistics center is situated on the grounds of a former motor depot in the village of Dekhmoy, within the J. Rasulov district of the Sughd region. It is approximately 14 kilometers away from Khujand and is surrounded by agricultural fields and residential neighborhoods. However, due to its limited expansion possibilities and its location in a densely populated area, potential challenges such as supply chain constraints, transportation difficulties, noise pollution, and local opposition are anticipated. These factors make it unsuitable for the establishment of an agrilogistics center at this site.

The site in the Free Economic Zone "Sughd" in Khujand has potential for expansion and is conveniently located less than 2 km from the main road. Surrounding businesses include metal-plastic and juice production companies. The site offers good access, existing infrastructure, and ample space for future growth, making it an ideal location for an Agro Logistics Center.

Regulatory and Policy Review

This Environmental and Social Impact Assessment (ESIA) has been conducted in accordance with the regulations of the Republic of Tajikistan and the World Bank Environmental and Social Standards (ESS). Throughout the project implementation, it is essential to adhere to these requirements. The environmental, social, and occupational health and safety legislation in Tajikistan is comprehensive and does not contradict the WB ESSs or the safeguard regulations of other International Financial Institutions.

Baseline Environment and Social Conditions

The Agro Logistics Center is being constructed within the Free Economic Zone "Sughd" established in 2009 as a designated area in Khujand with unique legal privileges and economic benefits for both local and international business owners. Spanning approximately 2 hectares, the site is a vacant, level space devoid of structures, trees, or crops, providing ample room for potential expansion. Oversight of free economic zones in Tajikistan falls under the jurisdiction of the Ministry of Economic Development and Trade.

In terms of biological resources, the habitats within the AOI project area are man-made and currently vacant, intended for future production purposes. The investigation revealed that the local vegetation consists mainly of common species that are not classified as specially protected by the International Union for Conservation of Nature (IUCN) or the Red Book of Tajikistan (RCT). Field surveys did not uncover significant fauna, aside from small birds and insects. No ecologically sensitive areas were identified within or in the vicinity of the agro-logistics center's impact zone.

Potential Impacts

The potential impacts of the proposed project on physical resources, environmental quality, ecological, economic, social and cultural resources have been identified for design, construction and operation phases and assessed according to the standard methodologies to ascertain the project's environmental and social sustainability. Appropriate mitigation and control measures have been proposed for each of the assessed impact, using the mitigation hierarchy – Avoidance; Reduction; Mitigation; and Compensation/Offset.

As part of this ESIA, a risk assessment methodology, by combining the magnitude of each potential impact with the sensitivity of receptor of that impact, has been adopted to assess the impact of the proposed activities on the various parameters of environmental, social and biological environments. The ESIA findings are that all the potential adverse environmental and social impacts of the proposed project are mostly of low to moderate significance and can be prevented and/or mitigated adequately and positive impacts strengthened with the effective implementation of mitigation and enhancement measures identified in this ESIA. The potential impacts and their significance as well as residual impacts.

The key impacts with high significance include waste generation, occupational health and safety risks, community health and safety (CHS) risks, and accidents as well as emergency situations. As stated above, appropriate mitigation and control measures have been proposed in this ESIA to address these potential impacts and to bring down the significance of the residual impacts to an acceptable level (Low or Minimal). Due Diligence was conducted for the Project area to determine possible land related impacts which can arise during the project implementation. The study confirmed the absence of the project affected people (PAPs) within the project Area of Impact (AOI). No land acquisition or resettlement impacts are expected, as all land in the Project AOI is owned and managed by the state company Free Economic Zone "Sughd" and has already been allocated for the Project.

Environmental and Social Management Plan

This Environmental and Social Impact Assessment (ESIA) incorporates an Initial Environmental and Social Management Plan (ESMP). The ESMP outlines the necessary institutional arrangements to effectively manage the environmental and social requirements

of the proposed project. This includes the implementation of the ESIA and ESMP, as well as a comprehensive mitigation and monitoring plan that identifies all potential impacts assessed during the ESIA. The plan also includes the associated mitigation measures and monitoring requirements. Additionally, instrument monitoring will be conducted throughout the construction phase. The ESMP also outlines the necessary E&S documentation and reporting requirements, as well as the training requirements for environmental and social aspects. To ensure a successful implementation, a comprehensive Environmental and Social Management Plan, including a budget for implementation, will be developed by an external consultant prior to commencing the tendering process.

Stakeholder Engagement

According to the WB ESS10, transparency and meaningful consultation are essential for the design and implementation of a Project and works closely with its Clients to achieve this objective. Additionally, the Government of Tajikistan's requirements on public consultation are set forth in the Law on Environmental Protection (Articles 12- 13). In accordance with this Law, citizens have the right to environmental information and participation in the development, adoption and implementation of decisions regarding environmental impact. To meet these requirements, PIU and ESIA consultants carried out several rounds of consultations with the key stakeholders including the local communities.

Several stakeholder engagement events have been held by ESIA consultants. More events will be organized by PIU before and during the construction phase. These events have included public meetings, focus group discussions and one-on-one meetings with potentially affected individuals, communities, and experts.

During the site visits, the ESIA consultants conducted individual and group consultations with the local population, business owners and governmental authorities. Consultations covered a number of meetings. A summary of these discussions is provided in Annex.

ESIA Disclosure

Once the Environmental and Social Impact Assessment (ESIA) is completed and finalized, the Project Implementation Unit (PIU) will ensure its disclosure at both the local and national levels. In order to facilitate accessibility, the Executive Summary of the ESIA will be translated into local languages. Additionally, the World Bank will also disclose the ESIA on its official website.

Furthermore, throughout the duration of the Project, the PIU will responsibly disclose any relevant information pertaining to the investment work under Component 2. This will be done as deemed appropriate, ensuring transparency and effective communication with stakeholders.

Grievance Redress Mechanism

Grievance procedures will be implemented for PAPs to lodge complaints or concerns at no cost and with a timely resolution. The procedures will comply with national legislation and international standards, addressing environmental and social issues. Complaints can be addressed through the following steps:

1. Regional Grievance Management Groups (RGMGs) will be established in Khatlon and

Sughd Regional Project Offices (RPOs) to resolve complaints within 14 days. Local governments will assist in reaching out to communities and individuals and provide support.

2. If the RGMGs cannot resolve the grievance within 14 days, it should be presented to the MoA PIU at the national level. The National Grievance Management Group (NGMG), chaired by the PIU Director, will make a final decision within 14 days.
3. If no solution is reached at the PIU level within 14 days, PAPs can submit their case to the appropriate court.

Grievance logs and forms are maintained on site, with tear-off stubs given to PAPs for transparency. PAPs can air grievances on their own or through local representatives. Anonymous complaints are also accepted. Information leaflets and contact details are provided at the district and jamoat levels. The GRM will be easily accessible, inclusive, and follow appropriate protocols for addressing and documenting grievances. Grievance focal points will maintain local grievance logs to track actions taken.

Conclusion

The analysis conducted on the proposed agro-logistic center has determined that the environmental and social consequences of the project are expected to be minimal and can be effectively mitigated. The impacts are not anticipated to be significant and can be easily addressed.

In terms of social implications, it is important to ensure that the local communities have safe and convenient access to the agro-logistic center. As long as this requirement is met, the social impacts of the project alternatives are expected to be minor.

The Environmental and Social Impact Assessment (ESIA) conducted for the project confirms that the benefits to the environment and society far outweigh any temporary inconveniences that may arise during the implementation phase. It is crucial that the Environmental and Social Management Plan (ESMP) is fully implemented to ensure that any potential negative impacts are effectively managed.

The ESIA, along with its accompanying ESMP, is considered to be sufficient in meeting the environmental assessment requirements set by both the World Bank and the Government of Tajikistan. This indicates that the project has been thoroughly evaluated and meets the necessary standards for environmental and social sustainability.

1. INTRODUCTION

1.1. Project description

Agriculture is an important sector of Tajikistan's economy. In 2022, it accounted for 23 percent of the country's GDP, 19 percent of exports, and 61 percent of total employment. Agriculture grew at an average annual rate of 6.4 percent between 2010 and 2021. Nevertheless, it has largely remained existing and underdeveloped, characterized by low labor productivity and the use of traditional low-productivity technologies. Most farmers are small in scale and poorly integrated into agri-food value chains. The food processing and input supply sectors are also small and fragmented, contributing to large imports of food and agricultural inputs. Tajikistan imports about 75 percent of the food consumed and more than 50 percent of the value of agricultural inputs such as seeds, seedlings, animal breeds, fertilizers and agricultural machinery, and most of these inputs are not adapted to the different agro-ecological zones of Tajikistan. More than 70 percent of value added in agriculture is generated by crop production and the rest by livestock production. Crop production is mainly concentrated in the river valleys, where 68 percent of the cultivated area depends on irrigation. Arable land is scarce, accounting for 20 percent of agricultural land (equivalent to 980,000 hectares), making sustainable intensification (i.e., higher yields) necessary to produce larger quantities of more nutritious food a priority. Approximately 86 percent of the arable land area is devoted to ten crops, including wheat (31 percent), cotton (22 percent), barley (9 percent), potatoes (6 percent), apples (5 percent), grapes (4 percent), onions (3 percent), and watermelon, corn, and tomatoes (2 percent each).

The Strengthening Resilience of the Agricultural Sector Project is a \$58 million IDA grant prepared to support Tajikistan to build the foundations for a more sustainable agricultural sector. relate to the availability of public agricultural services.

This project aims to support the Government of the Republic of Tajikistan in a successful transition to a sustainable, more productive, climate resilient and inclusive growth model for the agricultural sector. It will help to: (i) increase the availability of improved seeds, seedlings and planting materials that are climate-resilient, affordable, preferred by farmers and well adapted to the different agro-ecological conditions of Tajikistan; (ii) improve access of farmers and agribusinesses to improved agro-logistical services; and (iii) strengthen crisis management, i.e. the early warning, preparedness, and response capacity of selected public institutions. The project consists of the following components:

Component 1: Strengthening seed, seedling and planting materials systems: The objective of this component is to support the development of an effective seed, seedling and planting materials system that enhances the availability and utilization of new, improved and farmer preferred seeds, seedlings and planting materials. The approach to be followed in supporting the development of a dynamic seed/planting sector under the proposed project is an integrated approach to seed sector development. This approach will address bottlenecks in the seed/plant value chain in different seed systems including formal and informal, private and public, etc.

Component 2: Supporting investments in agro-logistics to expand horticulture value chains: The objective of this component is to support investments in agro-logistics centers (ALCS) to expand value-added horticulture value chains so that horticulture products become more competitive. The component will support horticulture investments initiated under ACP and REDP and learn from similar investments in neighboring Uzbekistan through investments in several agro-logistics centers with public-private partnership options in their management and operation. These investments will bring climate co- benefits by promoting agricultural diversification into horticulture, improving food distribution and food safety, reducing food losses and waste, and making construction climate resilient and energy efficient.

Sub-component 2.1 "Support to ALC development and operation" will support the establishment of three ALCs, tentatively located one each in Khatlon, Sughd and DRS regions where horticultural production is concentrated.

The main objective of these ALCs is to provide important services to support primary collection, quality and food safety standards for local horticulture and its access to high value markets. This will facilitate market access for local produce (horticulture) and reduce the risks of food loss and waste. The availability of ALC services will also increase private investment in horticulture, including orchards, which in turn will contribute to climate change mitigation and job creation.

ALCs should fill a critical gap in refrigeration, storage, packaging and logistics and initiate the development of an integrated network of market/distribution infrastructure in Tajikistan. They will promote more standardized production and quality management, including grading and packaging, for domestic and international markets.

Component 3: Building government capacity in crisis prevention and management: The objective of this component is to strengthen the crisis prevention and management capacity of selected public institutions. The COVID-19 outbreak caught many by surprise, revealing weaknesses in the current agri-food sector early warning and monitoring systems, as well as the government's response capacity. They have failed to provide reliable estimates of available food stocks/inputs and accurate forecasts of future harvests, leading to food hoarding and increased food price volatility. As climate change intensifies, crises such as the COVID-19 pandemic will occur even more frequently. The proposed project will strengthen selected/key government institutions to enhance capacity, resilience and improve early warning and response, plant protection and quarantine, and locust prevention/ eradication, as well as sector planning, monitoring and evaluation through digitalization and capacity building. Support will include investments in the digital and laboratory infrastructure of the Ministry of Agriculture and other selected government agencies and institutions, as well as capacity building to improve early warning and monitoring of the agri-food sector, and effective response.

The Component 2 will support investments in Agro- Logistics Centers to expand horticulture value chains and improve their competitiveness and access to high-end markets (e.g. retailers and exports). In Tajikistan, the logistics of fresh produce needs to be significantly improved, especially through the development of functional cold storage facilities that contribute to value chain efficiency and increase the value of fresh produce through shorter links between primary production and markets.

The proposed concept of ALCs, supported by the Government of Tajikistan and the World Bank, envisages the establishment of distribution centers that will process and distribute fruits and vegetables at the warehouse level. The main stakeholders in this process -

traders and producers - expect ALCs to play a key role in creating shorter chains, become cross-docking platforms, and help add value to produce by changing it in space and time:

- Collecting all regional agricultural products in one center and distributing them to different consumption points;
- Increasing the storage life of the products by using cold storage facilities and choosing the most favorable time to sell them on the market.

All links in the value chain, from growers to sellers, look to ALC as a strategic tool to improve their performance in the marketplace. Sellers are looking for a steady supply of quality produce to simplify and unify fresh produce purchases; growers are looking for more and better customers with whom to establish long-term trading relationships. Therefore, stability and reliability in the agricultural value chain business is expected from the ALC, bringing significant benefits to both parties - growers and sellers - in a typical win-win situation.

The project plans to construct three Agrological Centers in Khatlon, Sughd regions and DRS. The purpose of this construction is to strengthen control over the collection of primary produce, compliance with quality and food safety standards for local horticultural products and to ensure their access to high value-added retail outlets. The main buyers of these centers will be retailers, wholesalers and exporters. The construction of these centers will help develop an integrated network of market and distribution infrastructure in Tajikistan, increase production standardization and quality management, and improve refrigeration, storage, packaging and logistics systems. In the medium term, these centers could be integrated into a national food distribution system, which would improve food safety and quality, improve the competitiveness of the horticulture chain, strengthen aggregation and horizontal integration of smallholders, and create a favorable environment for private investment in the processing and service sectors.

The selection of sites for the construction of centers was based on several factors. Firstly, the proximity to the main areas of fruit and vegetable production in Tajikistan was taken into account. This will minimize the time and costs of transporting products to the centers. Secondly, the proximity to the city of Khujand, where a large number of people live and large retail chains are located, was taken into account. This will ensure easy access of products to consumers. Finally, a market demand analysis was conducted to determine the potential customer base for these centers.

The required land for each plot is estimated to be approximately 12,500 sq.m. The general layout of ALC facilities is shown in the figure below.

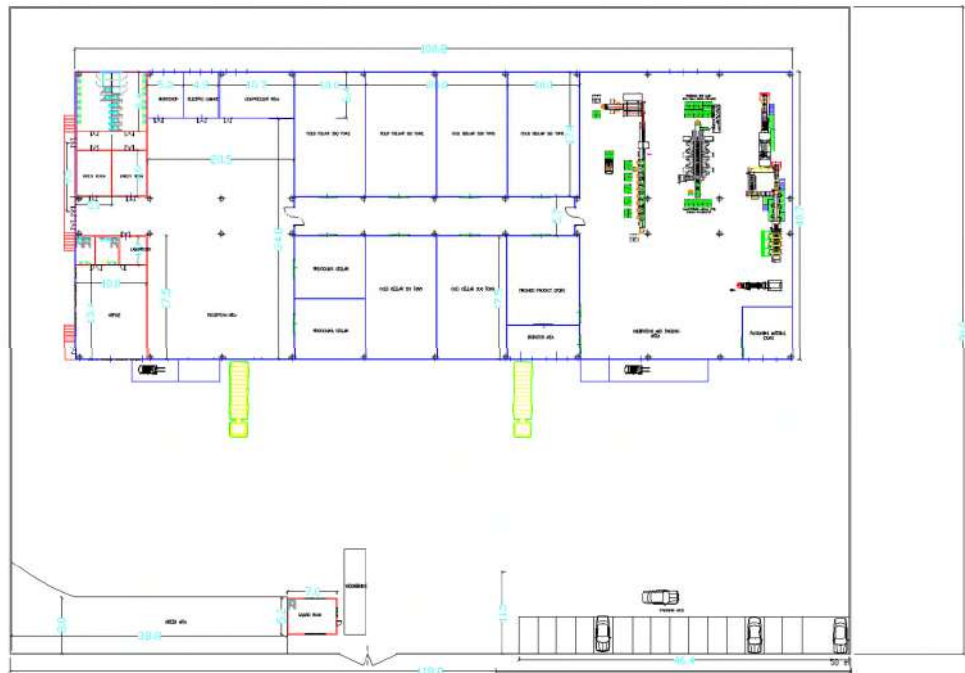


Figure 1: Master plan of the proposed ALC facilities

1.2. Purpose and objectives of the assessment

The scope of this Environmental and Social Impact Assessment (ESIA) is determined by the Environmental and Social Framework (ESF), as well as the environmental and social standards of the World Bank and national requirements for environmental assessment. The scope of this ESIA is based on the ESF developed for the project and It is limited to the location of the Agro-Logistics Center for Sogd region. The purpose of this ESIA is to assess the potential environmental and social risks and impacts of the proposed investment and propose mitigation measures where necessary.

The assessment was conducted in several phases:

- 1 A review of previous and available ESIA's, baseline data and technical reports related to the project was conducted.
- 2 The experts collected primary and secondary data on site to establish a baseline environmental assessment.
- 3 Potential environmental impacts due to the location of the agro-logistics center were assessed through field surveys and data analysis.
- 4 The potential for environmental improvements were investigated and corresponding measures were identified.
- 5 An Environmental and Social Management Plan (ESMP) was developed describing measures to mitigate the identified impacts, including institutional arrangements.
- 6 Key environmental parameters to be monitored after project implementation have been identified and an environmental monitoring plan has been developed.

1.3. Structure of the ESIA.

The document consists of eleven chapters that outline the environmental and social assessment procedures and mitigation requirements in accordance with the Bank's ESS requirements and standards for the Sughd region subprojects to be supported by the project:

- Chapter 1 summarizes the project context, rationale for the project, its development objectives and components.
- Chapter 2 describes the national legal framework.
- Chapter 3 describes the World Bank requirements that will apply to the project.
- Chapter 4 Presents an analysis of the "with project" or "without project" transition alternatives and an analysis of alternative sites.
- Chapter 5 summarizes baseline data on environmental resources and social conditions in the target areas.
- Chapter 6 analyzes potential environmental and social risks and the specific measures or actions planned to avoid, minimize, reduce or mitigate these impacts during the project cycle, as required by the ESS.
- Chapter 7 includes the Environmental and Social Management Plan.
- Chapter 8 describes the Contractor's Environmental Management Plan.
- Chapter 9 describes the institutional arrangements for implementing the ESIA.
- Chapter 10 summarizes how the ESIA report was disclosed to the public and highlights the public consultation procedures and grievance redressal mechanism under this project.
- Chapter 11 Summarizes the findings and recommendations.

The related annexes are attached at the end of this document in addition to the above chapters.

Findings and Recommendations of the ESIA: The overall risks and potential adverse environmental impacts of the civil works supported by the project are predictable and site-specific, limited in duration (construction phase) and can be mitigated with proper assessment, planning and modern construction techniques. The physical works to be undertaken are of medium scale and take place on or around existing roads. These risks may include risks of increased pollution due to improper care, handling and storage of construction materials and waste; generation of excessive noise and dust from trucks and other construction equipment; disturbance of soil cover during excavation works; cutting of trees and loss of vegetation along roadsides; impact of construction obstacles on road safety (for both vehicles and pedestrians) due to narrowing of roads and sidewalks; temporary impacts on the cross-section of roads and sidewalks; and temporary impacts on the cross-section of roads and sidewalks.

Potential social risks are mainly related to labor management. The main conclusions of this ESIA are that the proposed sites do not have significant adverse environmental and social effects, subject to full compliance with the recommendations set out below and the provisions of the ESMP.

The Environmental and Social Management Plan attached to this Final ESIA summarizes how the environmental and social performance of the project will be managed and

monitored, from which the Contractor shall develop its Contractor's ESMP.

During the site visit, the specialists consulted with key stakeholders including district authorities, district level environmental departments, line authority specialists and local communities in the target areas to get their views on the project. The results of the consultations and the institutional framework assessment have been incorporated into this assessment.

2. NATIONAL POLICY AND REGULATORY FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

2.1. Institutions that are concerned with environmental and social issues in Tajikistan

National level. Various agencies of the national government have environmental and social responsibilities at the national level, such as:

- Committee for Environmental Protection under the Government of the Republic of Tajikistan: environmental protection and sustainable use of natural resources, including water.
- **Ministry of Health and Social Protection of Population (MoH):** development and implementation of policies, rules and regulations related to public health;
- **Committee on Women and Family Affairs:** gender issues and implementation of family-oriented policies;
- **Architecture and Construction Committee:** providing technical advice on water and sanitation systems, including construction and design standards, contracting standards and rules, and regulation of design and construction activities;
- **State Statistical Committee:** collection, registration and provision of data on drinking water supply and sanitation;
- Ministry of Agriculture: Project Beneficiary

Local governments are responsible for environmental protection and are structured at two levels:

- **Hukumat**, or municipality/local public administration headed by a chairman appointed as the local representative of the president in implementing national policies and managing public services and regulations; and
- **Jamoat** or local government. The Jamoat covers a smaller administrative area than the hukumat. It is responsible for organizing the provision of some basic community-based public services. It has no budgetary authority and has a very limited autonomous role.
- **Private Institutions:** Private institutions, such as companies and industry associations, can also play a significant role in the construction and operation of agrologistic centers. Some potential roles for private institutions include:
 - Agribusiness Companies: Private companies engaged in agricultural production, processing, and marketing can play a significant role in the construction of

agrologistic centers. They may invest in such projects to enhance their supply chain efficiency and reduce costs.

- **Logistics Companies:** Private logistics companies can contribute by providing expertise in supply chain management, warehousing, transportation, and distribution services for the agrologistic centers.
- **Financial Institutions:** Banks and financial institutions can provide funding and financial support for the construction of agrologistic centers. They may offer loans, grants, or investment opportunities to facilitate the project.
- **Construction Companies:** Private construction companies are responsible for the actual construction of the agrologistic centers. They handle the design, engineering, and construction aspects of the project.
- **Technology Providers:** Private technology companies can offer innovative solutions and technologies to optimize operations within the agrologistic centers. This includes software systems for inventory management, tracking, and monitoring of agricultural products.

Public Organizations (POs), can contribute by providing technical expertise, conducting research, advocating for inclusive and sustainable practices, and ensuring the involvement of local communities in the construction and operation of agrologistic centers. Some potential roles for POs include:

- 1 **Research and Advocacy:** POs focused on agriculture and rural development can conduct research and advocacy work to highlight the importance of agrologistic centers and their potential benefits. They can gather data, analyze trends, and make recommendations to policymakers and other stakeholders.
- 2 **Capacity Building and Training:** POs can provide training and capacity-building programs for farmers, agribusinesses, and other stakeholders involved in the agrologistic centers. This can include training on best practices in logistics, supply chain management, and post-harvest handling to improve efficiency and reduce losses.
- 3 **Community Engagement:** POs can engage with local communities to ensure their voices are heard and their needs are considered in the construction and operation of agrologistic centers. They can facilitate participatory processes, conduct community consultations, and advocate for the inclusion of marginalized groups.
- 4 **Sustainable Practices:** POs focused on environmental sustainability can promote and advocate for the adoption of sustainable practices within agrologistic centers. This can include promoting energy-efficient infrastructure, waste management systems, and environmentally friendly transportation options.
- 5 **Monitoring and Evaluation:** POs can play a role in monitoring and evaluating the performance and impact of agrologistic centers. They can assess the effectiveness of the centers in improving agricultural productivity, reducing post-harvest losses, and enhancing market access for farmers.

2.2. Laws, regulations and guidelines on environmental protection in Tajikistan

Tajikistan has a well-developed legal and regulatory framework in the field of environmental protection. The current environmental legislation of Tajikistan includes legislative acts and laws on the following issues:

- Environmental protection;
- Environmental audit and monitoring;
- Protection of flora and fauna;
- Environmental Information and Education;
- Soil, Water and Air Quality;
- Biosafety;
- Human Health and Safety; and
- Waste and Chemicals Management.

These laws, as well as regulations approved by the government, provide a supportive legal framework for environmental protection, use and management of the country's natural resources. They also enshrine the rights of citizens to environmental safety, environmentally friendly products, ecologically clean environment, access to environmental information and the possibility of investing (moral, material and financial) in improving the environmental situation in the country.

Environmental legislation in Tajikistan includes the Constitution, codes and laws on air quality, noise, mineral resources, land management, forests, health and safety, and waste and chemical management. The Tajik Environment Framework Law was adopted in 1993, enacted in 1994, amended in 1996, 1997, 2002, 2004 and 2007, and replaced by a new law in 2011. The Water Code was adopted in 2000, amended in 2008, 2009, 2011 and 2012. The Land Code was adopted in 1996 and amended in 1999, 2001, 2004, 2006, 2006, 2008, 2011 and 2012. The Forest Code was adopted in 1993 and amended in 1997 and 2008.

Other important environmental legal acts, laws and regulations relevant to the project are listed in Table 1.

Table 1: Corresponding Environmental, Health and Safety Laws in Tajikistan

Law	Adopted and amended	Responsible agency	Brief description / Relevance to Project
Law on Environmental Protection	No.760, entered into force August 2011, last updated June 2022	Environmental Protection Committee and its subdivisions at the district level	The law defines the state principles of environmental protection and sustainable socio-economic development, guarantees of human rights to a healthy and favorable environment, strengthening of the rule of law, prevention of negative impact of economic and other activities on the environment, management of rational nature use and ensuring environmental safety. Chapter 6 requires environmental impact assessment, and Chapter 7 establishes requirements for siting, design, construction, reconstruction and commissioning of enterprises, buildings and other facilities.

Law on Environmental Impact Assessment	No. 1448, effective July 18, 2017	Environmental Protection Committee and its subdivisions at the district level	The law establishes the legal and institutional framework for environmental impact assessment, the interrelation with the state environmental expertise, as well as the procedure for registration and classification of environmental impacts.
Law on Environmental Monitoring	No. 707, effective March 25, 2011, last updated July 2014	Environmental Protection Committee and its subdivisions at the district level	The law defines institutional, legal, economic and social framework for environmental monitoring in the Republic of Tajikistan and regulates interrelations between state authorities, self-government bodies of settlements and villages, public associations and citizens in this sector.
Law on Environmental Information	No. 705, entered into force on March 25, 2011	Environmental Protection Committee and its subdivisions at the district level	The Law defines legal, institutional, economic and social framework for availability of environmental information in the Republic of Tajikistan, promotes realization of the right of legal entities to receive a comprehensive, reliable and prompt environmental information, as well as governs interactions in this field.
Law on Environmental Expertise	No. 818, entered into force on April 16, 2012	Environmental Protection Committee and its subdivisions at the district level	The present Law defines the principles and procedure of environmental expertise and is aimed at prevention of negative impact of planned economic and other activities on the environment and related social, economic and other consequences of realization of the object of environmental expertise.
Land Code of the Republic of Tajikistan	Adopted in 1996, last amended June 2023	State Committee on Land Management and Geodesy of the Republic of Tajikistan and its subdivisions at the district level	Land legislation regulates relations on the use and protection of lands, land ownership and property relations arising from the obtaining (acquisition) or transfer of land use rights.
Law on Specially Protected Natural Areas	Adopted December 26, 2011, last amended in 2023	Forestry Agency under the Government of the Republic of Tajikistan and its subdivisions in districts	The law determines the legal, institutional and economic foundations of specially protected natural territories, establishes the purpose, procedure of activity and a zonation.
Law on Plant Quarantine and Protection	No.1567 became effective on January 2, 2019	Environmental Protection Committee and its subdivisions at the district level Ministry of Agriculture (MoA); Forestry Agency; Academy of Sciences (AS).	The law defines legal norms, organizational and economic bases of quarantine and plant protection, implementation of quarantine phytosanitary measures, handling of plant protection products, and is aimed at preservation of agricultural products, protection of human, animal and environmental health.
On the protection and use of plant life	No. 31 entered into force on May 17, 2004	Environmental Protection Committee and its subdivisions at the district level; MoA; and AS	The law establishes the state policy in the field of protection and rational use of plants, determines legal, economic and social principles of conservation and reproduction of plants.

Forest Code of the Republic of Tajikistan	Adopted 2 August 2011.	Forestry Agency under the Government of the Republic of Tajikistan and its subdivisions in districts; MoA	The law regulates the protection, ownership, rational use and restoration of forests in Tajikistan. It defines prohibited activities in the protection zones of forests and their prescription regimes and conditions for the implementation of permitted activities in the forest use zone and their prescription regimes.
Law on Preservation and Utilization of Historical and Cultural Heritage	No. 178 entered into force on March 3, 2006, last amended in 2017	Ministry of Culture; AS; CEP; Forestry Agency	The law establishes the legal basis for the preservation and use of historical and cultural heritage objects in the Republic of Tajikistan as the national heritage of the Tajik people.
Law on Subsoil	No. 983 became effective July 20, 1994, last amended in 2013	General Directorate of Geology; CEP	The law regulates the use and protection of subsurface resources for the benefit of present and future generations.
Soil Conservation Law	No. 555 entered into force on October 16, 2009	CEOC; committee on land management and geodesy; MOA	The law defines the basic principles of state policy, the legal basis for the activities of state authorities, individuals and legal entities for the effective and safe use of soils, the preservation of their quality, fertility and protection from negative impacts, and regulates a variety of relations related to the protection of soils.
Water Code	Adopted April 02, 2020,	CEP, Ministry of Energy and Water resources (MEWP), MOA; Geology MOH	The purposes of the Water Code are: (i) protection of the state water fund and state water fund lands to improve the social situation of the population and the environment; (ii) combating water pollution, contamination, depletion, prevention and control of adverse impacts of water; (iii) improvement and protection of water bodies; (iv) strengthening the rule of law and protection of the rights of physical and legal persons in the field of water resources management.
Law on Protection	No. 915 entered into force on December 28, 2012	CEP; MOH; Agency for Hydrometeorology	The law regulates the relations of individuals and legal entities, despite their form of ownership, in order to preserve and improve the atmospheric air and ensure environmental safety.
Atmospheric Air	Adopted May 30, 2017, last amended in 2021	MOH	The Code regulates relations in the sphere of health care and is aimed at the realization of constitutional rights and public health and protection of citizens. Chapter 17 of the Code ensures sanitary and epidemiological safety.

Health Code of the Republic of Tajikistan	No. 44 entered into force on May 10, 2002, last amended in 2011	CEP; MOH; State Unitary Enterprise for Municipal Housing and Utility Services	The law governs interrelations arising in the process of waste generation, collection, storage, utilization, transportation, neutralization and waste disposal, as well as state management, supervision and control in the field of waste management. The Law is aimed at preventing the negative impact of production and consumption wastes on the environment and human health, and in case of their handling - at involving them in economic and production turnover as an additional source of stockpiling.
Law on Audits of Activities of Economic Entities	No. 1269 became effective December 25, 2015, last amended March 2023	State Inspection for Technical Supervision, CEP, Ministry of Labor	The law establishes the legal basis for conducting inspections, the procedure for conducting them, the rights and obligations of business entities, officials of inspecting bodies and is aimed at protecting the health, legitimate rights and interests of citizens, protecting the environment, ensuring national security and protecting the activities of inspected business entities regardless of their form of ownership.
Law on the Protection of Population and Territories from Natural and Technogenic Emergencies	No. 53 entered into force on July 15, 2004	Committee for Emergency Situations and Civil Defense (CoESCD) and its structural subdivisions	The Law defines the organizational and legal framework for the protection of population and stateless persons on the territory of the Republic of Tajikistan, as well as lands, inland areas, water, air space, fauna and flora and other natural resources of Tajikistan; objects of industrial and social purpose; environment from natural and man-made emergencies. Regulates public relations on prevention, emergence and development of emergency situations, reduction of damage and losses, liquidation of emergency situations and timely notification of the population located in dangerous zones in case of natural and man-made emergencies.
Wildlife Law	No. 354 entered into force on January 05, 2008, last amended in 2022	CEP; MOA; AS; Forestry Agency (FA)	The law regulates public relations in the field of protection, restoration and rational use of wildlife, and also establishes legal, economic and social foundations for the protection and restoration of wildlife resources
Labor Code of the Republic of Tajikistan	Adopted July 23, 2016, last amended in 2022	The Ministry of Labor;	The Code regulates labor and other relations and is directly aimed at protecting the rights and freedoms of parties to labor relations, providing minimum guarantees of labor rights and freedoms.

Fire Safety Act	No. 363 entered into force on March 20, 2008, last amended November 2023	Main Department of the State Fire Service of the Ministry of Internal Affairs of the Republic of Tajikistan (MIA)	The law defines the general legal, economic, social and organizational foundations of fire protection in Tajikistan; regulates relations between state authorities, local self-government bodies, organizations, other legal entities regardless of organizational and legal forms, as well as between state bodies, officials and citizens of the Republic of Tajikistan, foreign citizens and stateless persons.
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2.3. Environmental, Health and Safety Standards of Tajikistan

Workplace health and safety standards. Applicable national laws include the following:

- Labor Code, May 12, 1997;
- Law on Labor Protection No. 517, May 19, 2009/August 1, 2012;
- - Law on Industrial Safety in Hazardous Facilities No. 14, February 28, 2004/2008;
- - Law on Occupational Safety, December 24, 1991, as amended in 1998 and 2007;
- - Law on Public Sanitation and Epidemiological Welfare, No. 1010, July 22, 2013;
- - Law on Public Health Protection, No. 420, May 15, 1997/22 July 2013.

Occupational health and safety standards are agreed between trade unions and employers' associations, which are responsible for implementing the measures, and the MHSP, which is responsible for oversight and enforcement.

Asbestos. Tajikistan's only normative act on asbestos is a regional interstate agreement, the Interstate Standard GOST 12871-93, signed by Tajikistan, regulates interstate trade and transportation of chrysotile asbestos. Asbestos-containing products are legally available. Pipes and corrugated roofing materials are imported from Russia and China, and the Dushanbe Cement Plant resumed production of corrugated asbestos cement sheets in September 2013.

The resolution of the ILO Conference in Geneva (May 31 - June 16, 2006) declared that the elimination of future use of asbestos, identification and proper management of asbestos presently available are the most effective means of protecting workers from asbestos exposure and preventing future asbestos-related diseases and deaths. In Tajikistan, the Ministry of Education adopted a special decree 20 years ago prohibiting the use of asbestos and asbestos nets in chemical and physical laboratories of secondary schools, vocational schools and higher educational institutions.

Waste disposal. Environmental permits are issued and monitored by the CEP or the hukumat regulatory authority (depending on the level of impact). The state regulatory body is responsible for high impact enterprises, while the relevant department at the hukumat level is responsible for medium and low impact enterprises. Regardless of ownership, all companies that generate, store and process waste on their premises must obtain a license. In addition, companies must agree the volume of waste generation with state authorities and obtain a waste limit. Depending on the volume of waste generation, the limit is issued by the local environmental protection authority if it is <20 tons (t) or by the CEP if >20 t. According to the country's Industrial and Domestic Waste Law, domestic waste is considered hazardous waste, and according to the Hazardous Waste Management Licensing Law, companies handling hazardous waste must obtain a license.

Companies or organizations generating waste, including municipalities, must apply for

permits: permits for volumes of 20 cubic meters or more are obtained from the relevant authorities. Once the application is submitted, the relevant authority approves it with the relevant sanitary and epidemiological inspection and fire protection authorities and verifies all relevant aspects of the application. Within one month after the application is submitted, a permit is issued and the applicant receives a license; the technical requirements are listed in the annex to the license. The license fee goes directly to the state budget.

Municipal environmental departments are authorized to charge certain environmental fees based on air and water emissions and solid waste generation. The revenues from these fees are partly used to finance local and central government administration and environmental protection.

2.4. Legal framework for conducting Environmental Impact Assessment

Environmental Protection Framework Act. *The Law on Environmental Protection No. 208 (2011)* states that national environmental policy should prioritize environmental protection measures based on scientifically sound principles and integrate nature conservation and sustainable resource use with economic development. The law defines the applicable legal principles, protected objects, competencies and roles of the Government, local authorities, public organizations and private individuals. It also provides for measures to ensure the rights of the population and individual citizens to a safe and healthy environment and requires comprehensive environmental expertise and environmental impact assessment for decision-making on any activity with a potential negative environmental impact.

The Law defines environmental emergencies and environmental disasters, establishes the procedure for dealing with such situations, determines the responsibilities of officials and enterprises to prevent their occurrence and eliminate their consequences, as well as the responsibility of persons or organizations causing damage to the environment or otherwise violating the Law. The Law establishes several types of environmental control: state control, ministerial control, enterprise control and public control. State control is carried out by the CEP, the Sanitary Inspectorate of the MHSPP, the Industrial Safety Inspectorate and the Mining Inspectorate. Public control is carried out by public organizations or trade unions and can be carried out in relation to any state body, enterprise, organization or individual.

State environmental expertise. The Law on Environmental Protection No. 208 (2011), the Law on State Environmental Expert Review (2011) and the Procedure for Organizing and Conducting Environmental Expert Review (2014) establish that all types of economic and other activities must be carried out in accordance with environmental standards and regulations and have sufficient measures to protect and mitigate environmental impact to prevent and avoid pollution and improve environmental quality. They define the process of state environmental expertise (SEE), which verifies the compliance of planned activities and projects with the requirements of environmental legislation and regulations, as well as the environmental safety of society. SEE is a mandatory cross-sectoral process that must be scientifically sound, comprehensive and objective. It precedes decision-making on activities that may have a negative impact on the environment.

Funding of programs and projects, as well as decisions on siting, construction or reconstruction are only allowed after a positive SEE opinion has been received. If these requirements are violated, the CEP and/or other authorized control bodies may stop

construction until the necessary improvements are made. The responsibility for conducting SSE for investment projects rests with the CEP and its regional offices.

The administrative structure of environmental assessment. *The Law on Environmental Protection (2011)* states that the SEE is conducted by the State Committee for Environmental Protection. A subdivision of the ministry is tasked with leading and managing both the EIA and ESA.

EIA Surveys. The preparation of an Environmental Impact Assessment (EIA) study is the responsibility of the project developer. The EIA should analyze the short- and long-term environmental, genetic, economic and demographic impacts and consequences of projects and should comply with the standards of other sectors and relevant environmental expertise. relevant environmental protection agencies (sanitary-epidemiological, geological, water, etc.).

Environmental expertise. CEP — is the body responsible for the state's review of the EIA and environmental authorization of construction activities.

2.5. Requirements for environmental assessment in Tajikistan

Tajikistan has not defined criteria for categorization of environmental assessment. There are two laws that regulate all aspects of environmental assessment: (i) the Law on Environmental Protection (2011); and (ii) the Law on Environmental Expertise. Chapter V, Article 3539 of the Law on Environmental Protection (2011) introduces the concept of State Environmental Expertise (literally - State Environmental Expertise or SEE), the purpose of which is to verify the compliance of planned activities and projects with the requirements of environmental legislation and regulations and the environmental safety of society.

The following activities and projects are subject to state environmental expertise:

- Draft state programs, pre-project, pre-design and project documentation in the field of economic development;
- Regional and sectoral development programs;
- Spatial and urban planning, development and design;
- Environmental programs and projects;
- Construction and renovation of various types of facilities regardless of ownership;
- Draft environmental quality standards and other regulatory, technological and methodological documentation governing economic activities; and
- Existing businesses and business entities.

The EIA is a component of the SEE, as outlined in the Environmental Protection Act 2011 and the State Environmental Expertise Act 2012, which include both the department within the CEP and the process itself. The responsibility for conducting the EIA rests with the project developer. The State Environmental Expertise, which is a component of the process for all investment projects only, is the responsibility of the CEP and its regional offices. In addition, according to the 2012 Law on State Environmental Expert Review, all construction works, including rehabilitation, must be assessed for environmental impact, and proposed mitigation measures must be reviewed and monitored by the CEP.

According to the Law on Environmental Expertise of 2012, environmental expertise is intended to prevent negative environmental impacts from planned activities, to forecast impacts from activities that are not considered to be necessarily harmful to the environment, and to create databases on the state of the environment and knowledge of human impact

on the environment.

The Law "On Environmental Expertise" and the Law "On Environmental Protection" provide for two types of environmental expertise: SEE and public environmental expertise, which are not given equal importance. While the SEE is a mandatory condition for the start of any activity that may have a negative impact on the environment, public environmental expertise becomes mandatory only after its results are approved by the SEE body.

The SEE body has the right to invite leading scientists and qualified external experts to participate in the review. The approval must be issued within 30 days, unless the project developer agrees to an extension, and is valid for two years if the decision is positive. For very complex projects, the review and approval period may be extended to 60 days.

According to the Law on SEE, public environmental expertise of economic or other activities, the implementation of which may have a negative impact on the environment or the population living in the relevant territory, may be conducted by any public organization and citizen. They have the right to submit to the responsible state bodies proposals on environmental issues of the implementation of the planned activity and to receive from the relevant responsible bodies information on the results of the conducted SEE. The materials reflecting the public expertise submitted to the expert commission should be taken into account when preparing the SEE conclusion and making a decision on the implementation of the SEE object. Public environmental expertise is carried out within the framework of state registration of public organizations' appeals. Registration can be carried out by local executive bodies (within seven days) in the place where the expertise is planned to be carried out. Public organizations organizing the SEE should inform the population about the beginning of the expertise and its results.

The EIA regulatory and legal system also includes:

- EIA Procedure (adopted by the Decree of the Government of the Republic of Tajikistan No. 509 dated August 1, 2014);
- Procedure for implementation of the SEA (approved by the Decree of the Government of the Republic of Tajikistan No. 697 dated December 3, 2012);
- Guidelines on the composition and procedure for developing the content and structure of the documentation to be submitted for review (SEA), as well as coordination and approval of all forecast budget or investment estimates, design drawings or documentation to be developed in coordination with the SEA, buildings and facilities and sections of the EIA, strategic environmental assessment (SEA) and feasibility study documents; and
- List of objects and activities for which preparation of EIA documentation is mandatory (adopted by the Resolution of the Government of the Republic of Tajikistan No. 253 dated June 3, 2013).

The existing legal and regulatory framework developed is designed to define the legal basis for project implementation and their compliance with state requirements for environmental protection and mitigation.

In the Republic of Tajikistan, the organizations with the greatest responsibility for environmental monitoring and management are the CEP, the Sanitary Inspectorate of the MHSPP, the Industrial Safety Inspectorate and the Mining Inspectorate. There is an environmental licensing system for hazardous waste management and mining. A system of environmental permits regulates the use of natural resources.

The Law on Environmental Protection states that the SEE must be conducted by the CEP, which is an authorized state environmental authority. The CEP has comprehensive powers that include policy development and inspection. It has subdivisions at the provincial, city, and district levels in the form of environmental protection departments within the *hukumats* (local administrations) in each city or district.

2.6. EIA procedure

Regulatory laws and activities subject to state environmental (or environmental) expertise (SEE) that may involve EIA, or activities subject to SEE that may involve EIA.

The EIA considers the following types of impacts:

- Direct impacts, the direct impact of the primary and secondary planned activities on the site;
- Indirect impact, the impact of intermediate (secondary) factors arising as a result of project implementation; and
- Cumulative impacts, which are specific in nature and occur over the life of the project.

The EIA is reviewed by the State Environmental Expertise for compliance with the purpose of assessment and classification within 60 days.

The decision on determination of the appropriate SEE procedure for the EIA documents is made by the authorized body within no more than 10 days after submission of the documents for registration. The decision to conduct SER in respect of EIA documents is mandatory for the Customer in the course of any planned economic or other activity.

There are four categories of environmental impact of facilities subject to SEE and EIA: I - high risk; II - medium risk; III - low risk; IV - local impact. The requirements and conditions of SEE and EIA differ depending on the category of the facility.

2.7. Public participation

Article 12 of the Law on Environmental Protection proclaims the right of citizens to live in a favorable environment and to be protected from negative environmental impacts. Citizens also have the right to environmental information (Article 13) and to participate in the development, adoption and implementation of decisions related to environmental impact (Article 13). The latter is ensured by public discussion of drafts of environmentally significant decisions and public environmental expertise. Representative bodies of state power are obliged to take into account comments and proposals of citizens. Article 12 of the Law on Environmental Protection proclaims the right of citizens to live in a favorable environment and to be protected from negative environmental impacts. Citizens also have the right to environmental information (Article 13) and to participate in the development, adoption and implementation of decisions related to environmental impact (Article 13). The latter is ensured by public discussion of drafts of environmentally significant decisions and public environmental expertise. Representative bodies of state power are obliged to take into account comments and proposals of citizens.

2.8. International agreements

In accordance with the unified (monistic) legal system of the Republic of Tajikistan, international treaties and agreements after their ratification or accession to them by the

Government have equal force with the national legislation.

Tajikistan is a party to several international environmental conventions and protocols. The country has adopted state laws aimed at implementation of the terms of these international conventions, according to which "If an international treaty to which Tajikistan is a party contradicts this law, the provisions of the international treaty shall prevail".

International environmental conventions. Recognizing its global responsibility, Tajikistan is a party to several international environmental conventions. The main ones are presented in Table 2.

Table 2: Related international environmental conventions

International Convention	Year of accession
United Nations Convention on Biological Diversity (CBD), 1997. CBD updates include: Cartagena Protocol on Biosafety to the Convention on Biological Diversity, 2004; Nagoya Protocol on Biosafety to the Convention on Biological Diversity. Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, signed in 2011 and ratified in 2013.	1997
United Nations Framework Convention on Climate Change, 1998. The Kyoto Protocol was published on December 29, 2008 and entered into force on March 29, 2009.	1998
United Nations Convention to Combat Desertification (UNCCD)	1997
Vienna Convention for the Protection of the Ozone Layer, 1996, updated by the Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol), 1998; London Amendments to the Montreal Protocol on Ozone Depleting Substances, 1998; Copenhagen Amendments to the Montreal Protocol on Ozone Depleting Substances, 2009. ; Montreal Amendments to the Montreal Protocol on Ozone Depleting Substances, 2009; Beijing Amendments to the Montreal Protocol on Ozone Depleting Substances, 2009.	1996
Convention on International Trade in Endangered Species of Fauna and Flora (CITES)	2016
International Convention	Year of accession
Stockholm Convention on Persistent Organic Pollutants (POPs) (ratified 2007); Relevant updates: 2009 Amendments incorporating 9 new POPs, August 26, 2010; 2011 Amendment incorporating endosulfan, October 27, 2012; and 2013 Amendment incorporating HBCD, November 26, 2014.	2007
UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage	1997
Aarhus Convention (acceded in 2001); related update - Kiev Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information of May 21, 2003.	2003
Bonn Convention on the Conservation of Migratory Species of Wild Animals (entered into force in 2001); related update - Bukhara Memorandum on Deer, 2002.	

Tajikistan has also ratified other relevant international agreements:

- Occupational Safety and Health Convention, 1981

- Work Environment (Air Pollution, Noise and Vibration) Convention, 1977.

The project must meet the requirements of the World Bank's environmental and social standards, as well as the international standards of the IFC, a member of the World Bank Group. The international environmental and social safeguard policies of these organizations are listed below.

- IFC World Bank Group Environmental, Health and Safety Guidelines, 2007;
- IFC Guidelines on Asbestos Containing Materials (ACM), 2007;
- Environmental, Health and Safety Guidelines for Waste Management Facilities;
- Environmental, Health and Safety Guidelines for Water Supply and Sanitation; -
- Environmental, Health and Safety Guidelines for Health Care Facilities; and
- ILO Core Labor Standards.

3. THE WORLD BANK'S ENVIRONMENTAL AND SOCIAL STANDARDS (ESS)

The impact assessment of the project has shown that it meets several relevant standards including ESS 1, ESS 2, ESS 3, ESS 4, ESS 5, ESS 6 and ESS 10. These standards play a critical role in ensuring that the project is implemented in a sustainable and responsible manner, taking into account various environmental, social and governance factors.

ESS1 Assessment and management of environmental and social risks and impacts

The environmental and social impacts of the project are expected to be mainly positive as it will contribute to improved agricultural production and increased capacity to identify effective agricultural, land and water management practices.

However, there are potential environmental risks associated with site-specific construction activities under this component, such as dust, noise, waste management, disposal of electronic or hazardous waste. Although these risks are temporary and localized and may include soil loss due to planting activities; temporary, construction-related air and water pollution, such risks are expected to be reversible, short-term and easily remedied.

The main social risks and impacts of the project are related to: a) exclusion: various small and medium-sized farms and individual farmers as well as other vulnerable populations may be excluded from project activities/outputs/benefits due to remoteness, lack of adequate knowledge and skills to access and utilize improved technologies, inaccessibility of seeds and services; b) minor involuntary resettlement impacts associated with the construction of several buildings; and c) increased exposure to hazardous agrochemicals. No significant labor influx and community safety risks are expected under the project as most of the project workers (for construction activities) will be recruited locally. The risk of sexual exploitation and violence and sexual harassment is assessed as moderate mainly due to the status of national legislation on gender-based violence, gender norms and the rural location of most project activities.

ESS2 Labor resources and working conditions

The project involves small/medium scale infrastructure for the construction or rehabilitation of gene banks, seed laboratories and agro-logistics centers, so it is expected that most contractors will be from the local community. Most of the labor force is expected to be locally hired except for a few skilled workers.

During project preparation, a Labor Management Procedures (LMP) was developed to describe the types of project workers, working conditions and associated labor risks, and mitigation measures. There will also be measures to train and recruit as many workers as possible from the local communities where the activities will be implemented. As well as health and safety (HSE) aspects, including specific documents to be prepared by contractors prior to commencement of works (HSE checklists, codes of conduct, safety

training, etc.). Contracts for construction works will include social and environmental mitigation measures based on the World Bank Group's Environmental Guidelines.

Child labor/forced labor risk is limited as contractors must comply with national laws on minimum employment age and contracts. The Tajik Labour Code allows the employment of 14 to 16-year-olds with parental permission for non-hazardous work outside of school hours. Child labor is not permitted for civil works, but children above 14 can assist in agricultural work outside of school hours. The MoA PIU will oversee contracts and ensure contractors do not use child/forced labor. Staff responsible for contractor supervision will monitor and report any cases of child/forced labor.

Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) risk is assessed as moderate mostly due to the status of national Gender-Based Violence (GBV) legislation, gender norms, and the rural location of most project activities.

Labor risks associated with contracted workers at subproject level. Subprojects will be implemented by local contractors and most contracted workers will be hired locally with the exception of a few skilled workers. All contractors will be required to have a written contract with their workers materially consistent with objective of ESS2, in particular about child and forced labor.

Employment Risks. The PIU at the MoA will hire workers either directly as PIU staff or indirectly through contracts with NGOs or service providers. The experience of implementation of projects funded by the WB, has shown that subcontractors follow legal and regulatory labor and accounting procedures. However, there is a risk that the current practice of unaccounted working hours and lack of compensation for overtime will continue. The MoA PIU relies on donor-funded projects and has approved budgets per project. They cannot exceed these budget limits. The MoA PIU will track staff working hours using timesheets and restrict overtime.

Non-discrimination and equal opportunity refer to the principles and practices that ensure fair treatment and equal access to opportunities for all individuals, regardless of their race, ethnicity, gender, age, religion, disability, or any other protected characteristic. These principles are essential in promoting a just and inclusive society. Ways to prevent discrimination and promote equal opportunity include education programs for diversity understanding, affirmative action policies, fair recruitment processes, accessible infrastructure, monitoring discrimination cases, and involving communities in decision-making.

Occupational health and safety requirements ensure the health and safety of employees. They include risk assessment, safety training, providing personal protective equipment, ergonomic design, controlling hazardous substances, emergency preparedness, machinery and equipment safety, workplace violence prevention, recordkeeping and reporting, and regular audits and inspections. Mitigation measures include engineering controls, administrative controls, PPE, training, clear communication channels, reviewing and updating policies, promoting a safety culture, conducting inspections and audits, and investigating incidents. These requirements aim to create a safe working environment and minimize accidents, injuries, and illnesses.

ESS3 Rational use of resources, prevention and management of environmental pollution

As the project aims to expand and intensify horticultural production, there is a risk of

increased pesticide use by farmers and farm managers who may not be adequately trained or equipped to safely handle and use pesticides. All infrastructure facilities, including ALCs, cold stores, offices and laboratories constructed and/or rehabilitated under the project will utilize energy efficient and climate resilient materials and structures.

In the context of construction of Agro-Logistics Centers, ESS 3 focuses on resource efficiency and pollution prevention. It encourages projects to minimize waste generation, reduce resource consumption and adopt clean technologies. During construction, achieving ESS 3 can be done by effectively managing waste through recycling and proper disposal. Additionally, incorporating energy efficient technologies and practices is essential. Implementing water conservation measures is also important, as is prioritizing the use of sustainable and local materials. Preventing pollution through proper handling and disposal of hazardous materials is crucial. Lastly, designing efficient storage facilities to minimize waste generation is necessary.

ESS4 Community health and safety

ESS 4 (Community Health and Safety) can also be applied to the construction of agro-logistics centers to ensure the well-being of workers and the surrounding community. At the agri-logistics center, several measures are in place to ensure the well-being of employees and the surrounding community. Health and safety protocols are strictly followed, including providing training and protective gear to all staff members. Regular inspections are conducted to identify any potential hazards and address them promptly.

ESS5 Land acquisition, land use restrictions and involuntary resettlement

New construction will inevitably require "land" but this will be limited to a few sites. While the project expects the Government to provide land, due diligence is required to ensure that there is no physical and/or economic displacement.

The land designated for the construction of the Agro-logistics center is currently under the ownership of the Sughd Free Economic Zone, as stated in their balance sheet. Consequently, the Resettlement Policy Framework for the project has determined that the formulation of a resettlement action plan is not required.

ESS6 Biodiversity conservation and sustainable management of living natural resources.

ESS 6 (Biodiversity and Ecosystem Services) may not be directly related to the construction of agro-logistics centers as the logistics center will be located in populated areas. However, efforts can still be made to minimize impacts on local biodiversity and ecosystems. This may include the implementation of measures such as:

- 1 Green infrastructure: Incorporating green spaces such as gardens or public gardens into the agro-logistics center to promote biodiversity and provide habitat for local flora and fauna.
- 2 Sustainable landscaping: Use of native plants in landscaping to support local biodiversity and reduce the need for excessive water and chemicals.
- 3 Stormwater Management: Implementing stormwater management measures, such as the use of permeable surfaces or rain gardens, to prevent pollution of local water bodies and protect aquatic ecosystems.
- 4 Waste management: Implement appropriate waste management practices to minimize

pollution and potential harm to local ecosystems. This may include recycling programs, composting, and proper disposal of hazardous materials.

ESS8 Cultural heritage

ESS 8 is assessed to be unrelated to the project. However, during construction of the agri-logistics centers, measures would be taken to identify and protect any unexpected archaeological or cultural artifacts that may be discovered. This is being done as a precautionary measure to ensure that important historic or cultural resources are not damaged or destroyed during construction. Chance find procedure for the project provided in Annex 2

ESS10 Stakeholder engagement and information disclosure

Stakeholder engagement is an inclusive process conducted throughout the project life cycle. Where properly designed and implemented, it supports the development of strong, constructive, and responsive relationships that are important for successful management of a project’s environmental and social risks. Stakeholder engagement is most effective when initiated at an early stage of the project development process, and is an integral part of early project decisions and the assessment, management, and monitoring of the project’s environmental and social risks and impacts.

The consultant conducted local public consultations on the draft ESIA and invited all interested stakeholder organizations, including local representatives of other government bodies such as health and labor departments, local khukumats, jamoats, mahalla leaders, and local NGOs from the target site. During the consultations, the consultant presented a summary of the draft ESIA, discussed resettlement issues, and shared the project’s adopted GRM. The audience was informed about the screening process for the projects, the Environmental and Social Assessment for Substantial Risk sub-projects, potential impacts that may be generated, and the measures to be taken to prevent/mitigate these potential impacts.

3.1. Gap analysis between national legislation and the World Bank ESS

The table below provides a brief analysis of the gaps and differences between Tajikistan’s national legislation and World Bank requirements, and details how these gaps will be addressed by the project.

Table 3: Gap analysis between the legislation of Tajikistan and the WB

Legislation of Tajikistan (Identified gaps)	World Bank Requirements	How to Address by Project
Tajikistan’s legislation does not provide for the development of a specific stakeholder engagement plan for public consultations.	Stakeholder consultation and public engagement is an integral part of the development and implementation of the RWSP	The Project will undertake a comprehensive consultation process with project-affected persons, local and state governments, and other stakeholders as needed through public disclosure meetings, individual consultations, and public consultations
There are provisions in Tajikistan’s legislation that allow citizens to file complaints, but	World Bank ESS 10 allows for anonymous submission of complaints	The project will apply the World Bank standard and allow anonymous submission of complaints

these provisions do not allow for anonymity.		
Tajikistan's legislation does not contain special provisions for addressing the problems of vulnerable groups during the consultation process	ESS10 specifically provides for the identification and engagement with vulnerable groups that may be affected by the project to ensure that these groups also benefit from project activities.	The SEP under the project will identify affected vulnerable persons and engagement mechanisms to ensure that their voices are heard and concerns are addressed to the maximum extent possible under the project.
Land, subsoil, water, airspace, animal and plant life and other natural wealth is the property of the state	ESS 5. Speaks about the procedure of land withdrawal when necessary for state needs. Each PAP is entitled to compensation for damages.	The project restricts land use rights and compensates affected persons
The Environmental Protection Act gives the right to preserve cultural value to places of worship, pilgrimage centers, and cemeteries.	ESS3, ESS8 Pollution prevention and cultural heritage. Gives a broad right to the preservation of cultural property and the prevention of pollution	Calls for the adoption of modern environmental standards for water, air, soil, solid waste, toxic waste, and noise abatement, subject to maximum permitted amounts.
The minimum age of employment is 15 years old, but in some cases of vocational training, 14 year olds may be allowed light work	14-15 year olds are limited to working hours of 24 hours per week. 18 year olds are limited to 35 hours per week. Areas with difficult working conditions do not allow teenagers under 20 years of age to work.	These limits are in line with the ILO minimum age convention

4. ANALYSIS OF ALTERNATIVES

EIA standards require the identification and evaluation of possible alternatives to project design and implementation, not least to demonstrate that the cheapest or simplest project option has not been chosen (if it has significant adverse effects) and that E&S aspects have been considered and taken into account during project development. There are consequently a number of 'project drivers' that influence the potential alternatives and the following scenarios:

- No Project Parameter;
- Alternative Projects;
- Various locations of ALC and other key infrastructure within operational constraints.

4.1. Alternative without the project

The No Project Alternative would be for Tajikistan to withdraw from the project.

As stated in the project summary, agriculture is the backbone of Tajikistan's economy and the income potentially generated by the Agro-Logistics Centers is expected to have a significant positive impact on the country and the people. The project will help improve farmers' and agribusinesses' access to improved agro-logistical services and increase the resilience of the agricultural sector to crises, improve domestic food security, and strengthen the basis for increased production and export competitiveness. It will also contribute to the development of a viable private micro, small and medium enterprise (MSME) sector in rural areas and create employment opportunities in regions with few alternatives.

If agro-logistic centers are not constructed, the following benefits would be lost:

(i) Increased availability of improved seeds, seedlings, and planting materials: Agro-logistic centers play a crucial role in providing farmers with access to high-quality seeds, seedlings, and planting materials. Without these centers, farmers may struggle to find the right agricultural inputs that are well-adapted to the local agro-ecological conditions. This could result in lower crop yields and reduced productivity.

(ii) Improved access to agro-logistic services: Agro-logistic centers provide farmers and agri-businesses with essential services such as storage, transportation, and processing facilities. Without these centers, farmers may face difficulties in accessing these services, which can hinder their ability to efficiently manage and market their agricultural products. This could lead to post-harvest losses and reduced profitability for farmers.

(iii) Strengthened crisis management capacity: Agro-logistic centers also play a vital role in strengthening the crisis management capacity of public institutions. These centers can serve as hubs for early warning systems, preparedness, and response mechanisms during times of agricultural crises such as natural disasters or disease outbreaks. Without these centers, the ability of relevant public institutions to effectively respond to agricultural crises may be compromised, leading to increased vulnerability and decreased resilience in the agriculture sector. region as a whole.

4.2. Alternative projects

Several alternatives for the construction of agro-logistics centers were considered during project preparation:

- Development of existing infrastructure: Instead of building new centers, existing infrastructure such as warehouses, transport networks, etc. can be used. However, it should be taken into account that this may limit opportunities for expansion and optimization of logistics processes.
- Outsourcing of logistics services: Companies can utilize the services of third-party logistics providers that already have developed infrastructure and experience in this field. However, it should be taken into account that this may lead to loss of control over logistics processes and quality of service problems.
- Improving existing systems: Instead of building new centers, you can focus on improving existing systems and processes. This may include automation, optimizing delivery routes, introducing new technologies, etc. However, it is worth bearing in mind that this may require significant investment and time.

4.3. Alternative sites for construction of ALC

For the construction of an Agro Logistics Center for the Sughd region, three sites located near the city of Khujand in the Sughd region were considered:

Plot on the territory of the “National Garden” near the village of Somgor in Bobojon Gafurov district

Located in the countryside, within 600.00 hectares of gardens, there is potential for expansion. Located approximately 20 km from the city of Khujand, in the Bobojon Gafurov district in the Haydar Usmonov jamoat. From the northern part, the site is adjacent to the agricultural lands of MMK Agro LLC; on the other sides, the territory is surrounded by the National Garden.



Since the land belongs to the National Garden, clearing the area will require cutting down many trees.

Also, the construction of an agro logistics center on this piece of land can lead to the destruction of the ecosystem and loss of biodiversity. Many animals and plants that live in this area will be forced to look for new habitats or die. This can lead to ecological imbalance and have a negative impact on the environment.

Instead of using this piece of land to build an agro logistics center, it may be worth considering alternative options that will not cause such a negative impact on the environment and nature. This could be moving the center to another territory or searching for other empty lands that do not require deforestation.

The territory of the former Automobile depot, this site was previously used by an automobile depot, located in the village of Dekhmoy, J. Rasulov district, Sughd region. Located in a rural area at a distance of approximately 14 kilometers from the city of Khujand. On the eastern part of the site there are agricultural lands belonging to the Farm named after R. Nabiev, on other sides the site is surrounded by private residential buildings. The site has good access, however, limited expansion options.



Densely populated areas can also create problems with the supply and transportation of necessary materials and goods. Limited space may limit the ability to accommodate warehouses, parking and other necessary facilities.

In addition, the presence of a large number of residential areas can cause problems with noise, pollution and other negative environmental impacts. This may lead to a negative attitude of local residents towards the construction of the agro logistics center and create legal obstacles to its development.

In general, its location in a densely populated area and limited opportunities for expansion make this site undesirable for the construction of the agro logistics center. Construction on this site requires careful study and analysis of all factors before making a final decision on construction on this site.

The site on the territory of the Free Economic Zone "Sughd" is located within the city of Khujand, there is potential for expansion. The ALC will be located less than 2 km from the main route using an existing road in good conditions, within the existing Free Economic

Zone. To the north of the site is the production company CJSC Ariana Metal Plast, which produces metal-plastic structures, as well as warehouses and industrial buildings of the Private Entrepreneur "Abdullo-zadeh R.R." engaged in the production of natural juices and drying of vegetables and fruits. In the southern part of the site there is a production company Real LLC, which produces polyethylene pipes and electrical cables.

The Agrological Center will be strategically located within the Free Economic Zone "Sughd," designated for industrial purposes. The administration of the Free Economic Zone has officially granted approval for the establishment of this essential agro-logistics hub in the area.



This site has good potential as it has good access and already functioning infrastructure. However, the main advantage of this site is its potential for expansion. The large area and free space will allow ALC to develop and increase its production capacity as needed. This is especially important in the context of growing demand for agricultural products and the need to improve their quality.

The chosen location within the Free Economic Zone "Sughd" offers numerous advantages for the Agrological Center, including access to key resources, transportation networks, and potential economic incentives. By situating the center within this zone, we aim to leverage these benefits to optimize operations and enhance overall efficiency.

Furthermore, the proximity to agricultural areas and markets provides a strategic advantage for the Agrological Center, fostering seamless supply chain management and facilitating the distribution of agricultural products. This strategic positioning underscores our commitment to creating a sustainable and thriving agro-logistics infrastructure that meets the needs of both producers and consumers.

Figure 2: Satellite view of the plots, taking into account the proposed development



Photo 1: General view of the site



Photo 2: Vegetation on the site



Photo 3: Industrial organizations adjacent to the site

In general, this site has all the necessary conditions for the successful construction of an Agro Logistics Center. Its good accessibility, existing infrastructure and potential for expansion make it an ideal location for this project.

4.4. Possible Resettlement Impacts and Land Use

The site designated for the construction of the Agrological Center is situated within the Free Economic Zone "Sughd" and falls under industrial land usage. The administration of the Free Economic Zone "Sughd" has approved the allocation of this specific area for the establishment of an agro-logistics center.

Upon a comprehensive site inspection, our team of consultants meticulously examined all land documentation to ensure the legitimacy of property ownership. This due diligence process confirms that the designated site is indeed suitable for the construction of the Agrological Center.

5. BASELINE INFORMATION ABOUT THE ENVIRONMENTAL AND SOCIAL ASPECTS OF THE SUGHD REGION

5.1. Physical environment

5.1.1. Geography and topography

The Sughd region is located in the north-west of the country and borders the Jizzakh, Namangan, Samarkand and Fergana regions of Uzbekistan, the Osh and Batken regions of Kyrgyzstan. It is separated from the rest of Tajikistan by the Gissar Range. The southern part of the region is the east-west valley of the upper reaches of the Zarafshan River. In the north, behind the Turkestan ridge, is the Fergana Valley. The region is home to 30% of the population of Tajikistan and one third of its land is arable. It consists of 14 districts. The physical environment is characterized by a long glacial valley formed by the Zarafshan glacier.

The Syrdarya River flows through the region. The region contains key ornithological territories of the Akash and Mogoltau mountain ranges. Sughd is separated from the rest of Tajikistan by the Gissar Range. The southern part of the region is the east-west valley of the upper reaches of the Zarafshan River. In the north, behind the Turkestan ridge, is the Fergana Valley. The region is home to 30% of the population of Tajikistan and one third of its land is arable.

The Sughd region is divided into two different topographic zones, which are the Fergana Valley and the Zeravshan Valley. The Fergana Valley is located in the north of the Sughd region and borders Kyrgyzstan and Uzbekistan, and the Zeravshan Valley is located in the south of the Sughd region.

The Fergana Valley, the most populous region of Central Asia, stretches across northern Tajikistan from Uzbekistan in the west to Kyrgyzstan in the east. This long valley, stretching between two mountain ranges, reaches its lowest altitude of 320 meters in Khujand on the Syrdarya River. Rivers bring rich soil sediments into the Fergana Valley from the surrounding mountains, creating a series of fertile oases that have long been valued for agriculture.

The territory of the Sughd region is occupied by mountainous and plain areas. The area of the mountainous areas is 703.5 thousand hectares, the area of the highlands is 820.9 thousand hectares on average, and the area of the lowland areas, including the foothills, is 339.8 thousand hectares. Almost one-fifth of the lowland areas are formed by desert, amounting to 131.9 thousand hectares.

5.1.2. Land use

Almost all pastures are located on the steep hills of the Sughd region, where the risk of erosion is high. In recent years, pastures have been overused, which worsens erosion and leads to desertification of summer and winter pastures. On grassed pastures, especially bluegrass and sedge pastures, the crop content of plants gradually changes. At the same time, pasture productivity decreases by 5-10 times.

Categories of land use types in the Sughd region are shown in Table 4-10 for 2013. In the Sughd region, almost half of the land, which is 1,391.1 thousand hectares (53.2%), is used for agricultural purposes.

Table 4: Distribution of land by category in Sughd Region

Land use type	Thousand hectares	%
Thousand hectares - Agricultural land	1 391.1	53.2%
Territories of residence	89.9	3.4%
Land used for industry, energy, communications, transport, defense and other purposes	90.8	3.5%
Specially protected areas	0.881	0.0%
Woodlands	481.7	18.4%
Water bodies	14.0	0.5%
Reserve lands	547.5	20.9%
Total	2 615.8	100.0%

5.1.3. Soil

Light gray soils, formed in dry, hot climates under sparse vegetation, contain little humus, are rich in lime and often contain easily soluble salts. Under certain conditions they are susceptible to secondary salinization. These soils are common in the valleys of the Syrdarya River at an altitude of 300-600 m and above. At higher altitudes, due to increased rainfall and enriched vegetation cover, ordinary gray lands turn into dark ones, such as the Zeravshan Valley. Ordinary gray soils contain slightly more humus and are also rich in lime. In the middle mountains of the Sughd region there are mountain brown soils, which can be traced on the slopes of ridges at altitudes from 1600 m to 2900 m. Dark gray soils are the main irrigation fund of the republic's lands. Under the influence of long-term watering and tillage, they acquired the features of highly productive cultivated soils.

Soil erosion is widespread in the Sughd region due to improper irrigation management. This is sometimes exacerbated by variable precipitation, snowmelt, or stormy runoff. Soil nutrient cycles, especially nitrogen uptake and humus production, need more careful management to avoid nutrient depletion. The table below shows the scale and intensity of land degradation in the Sughd region.

Wind erosion is typical for the Sughd region (23%), especially in the areas of the Zeravshan Valley (Penjikent city).

Table 5: Soil erosion in Sughd

Type of erosion	Degree of erosion (%)
Non-erodible	2.8
Weekly eroded	4.5
Moderately erodible	58.6
Highly erodible	22.0
Very highly erodible	12.1

Landslides occur in the mountainous part of Sughd and wherever there is a slope with a coefficient of more than 10%. Landslides often occur when cultivating land on mountain slopes, when the banks of rivers and reservoirs are eroded due to improper construction of hydraulic structures (canals, ditches) and roads, as well as due to erosion of ravines. Landslides destroy fertile mountain slopes and turn them into unproductive empty areas.

Water saturation and waterlogging of the soil can occur in high-water layers or as a result of human activity due to an increase in groundwater levels, especially in the flat areas of the Sughd region. Waterlogging leads to a decrease in soil fertility and the exclusion of large areas from agricultural use.

Salinization often occurs in intermountain valleys, such as the Fergana Valley of Sughd. Salinity is a serious problem for irrigated agriculture in drylands that have little or no groundwater drainage capacity. Irrigation of newly developed areas in the foothills leads to a rise in groundwater, which carries mineral salts from the bottom of the earth and from groundwater. This contributes to the salinization of previously irrigated areas located below the newly reclaimed lands, usually at the level of the second and third terraces above the river floodplain.

Soil drainage occurs where soil fertility has noticeably decreased. This is due to the reduced humus content in the soil as a result of improper tillage, lack of fertilizers and irregular crop rotation. In general, the soil in the Sughd region, especially in the mountains, is unlikely to be fertile. Consequently, drainage leads to decreased agricultural productivity, soil erosion and deflation. Reducing the use of organic and mineral fertilizers by more than three times leads to a decrease in soil fertility and a decrease in agricultural productivity.

5.1.4. Geology

This part of Tajikistan is called the Fergana Basin in the geological literature. To shed light on this history, we first present sedimentological and stratigraphic observations from well-exposed Cenozoic outcrops to the east, near Tash-Kumyr in Kyrgyzstan. The triangular Fergana Basin is located in the western part of the Kyrgyz Tien Shan, which is part of the Central Asian Orogenic Belt (Central Asian Mobile Belt).

5.1.5. Air quality

Figure 1 presents the total emissions of pollutants into the atmospheric air, such as particulate matter, CO, SO₂, NO, hydrocarbons from stationary sources in the Sughd region from 2005 to 2018. Emissions almost tripled between 2009 and 2018. The figure also shows

the amount of pollutant emissions released from stationary sources into the atmosphere without treatment. The share of untreated pollutant emissions is almost 86% of the total, which is very high. The total volume of emissions of pollutants emitted by mobile sources in the Sughd region in 2018 was recorded at 218.8 thousand tons/year.

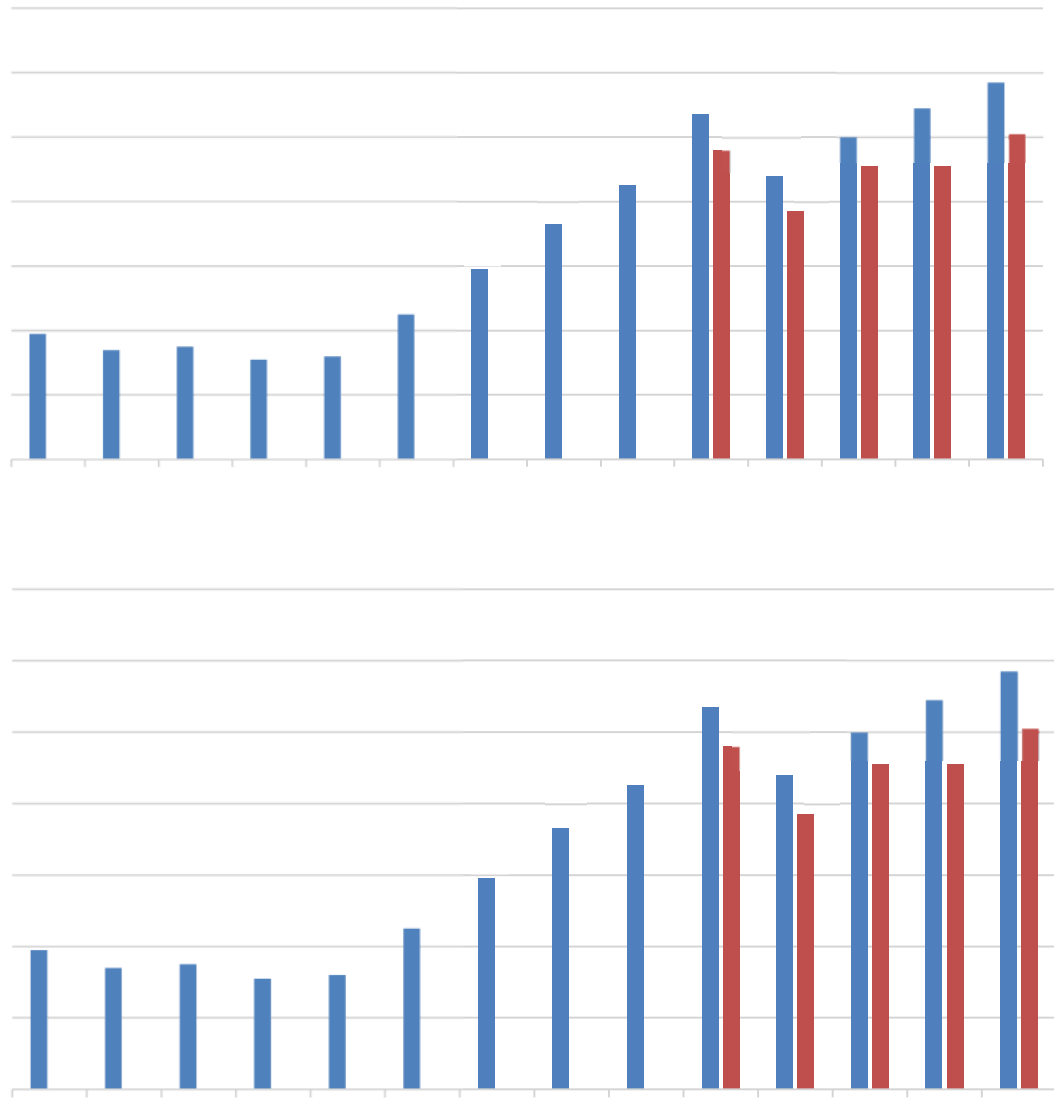


Figure 3: Emissions of pollutants into the atmospheric air from stationary sources in the Sughd region (2005-2018)

5.1.6. Water resources and their quality

The main rivers in the Sughd region are the Syrdarya and Zeravshan. The Syrdarya River originates in the Tien Shan Mountains in Kyrgyzstan and eastern Uzbekistan and flows 2,212 kilometers (1,374 miles) west and northwest through Uzbekistan. The northwestern part of the country is part of the Syrdarya River basin. The recorded total flow volume in the

Tajik part of the Syrdarya River in 2018 is 15,978 km³/year. The Kairakkum reservoir is a large artificial lake in the B. Gafurov district of the Sughd region. In 2016, the reservoir was renamed “Tajik Sea” by the decision of the Majlisi Oli of the Republic. The reservoir is located in the western part of the Fergana Valley on the Syrdarya River. The regional administrative center, Khujand, is located approximately 15 km west of the reservoir. The constructed Kairakkum reservoir has a water surface area of 520 km², its length is 56 km, and its maximum width is 15 km. The volume of the Kairakkum reservoir is approximately 3,410 km³.

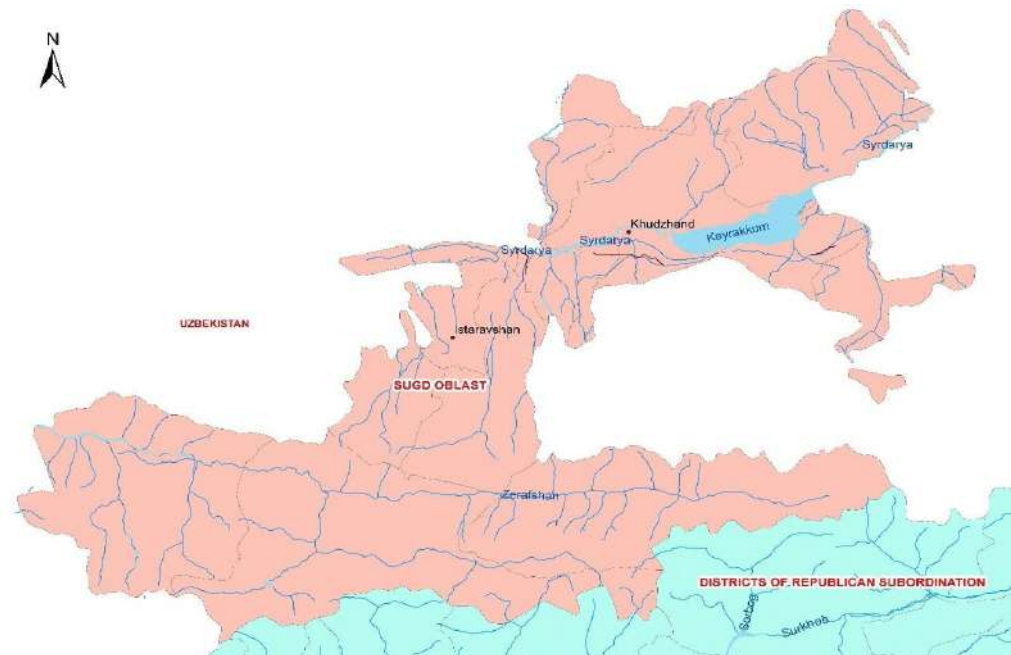


Figure 4: Main rivers and lakes located in the Sughd region

5.1.7. Climate

The Sughd region has a variable climate with moderately cold winters and hot summers. The summer months are very hot and temperatures can reach over +45°C. The average temperature in July exceeds +30°C. The winter months are relatively cold and the average January temperature is around -6°C, but temperatures can drop as low as -28°C. In the Zeravshan Valley, the climate is characterized as continental, warm temperate and semi-arid.

Precipitation follows an annual pattern with maximums in late autumn and spring with an annual 400-700 mm. The microclimate of the most elevated region of Kukhistoni Maschokh is determined by its high mountain environment, exceeding 5000 m. All climate diagrams in this area are the result of collected data from 3 measuring stations in the Sughd region. Weather stations above 2230 m were not included. All data correspond to monthly averages for the last 20 years.

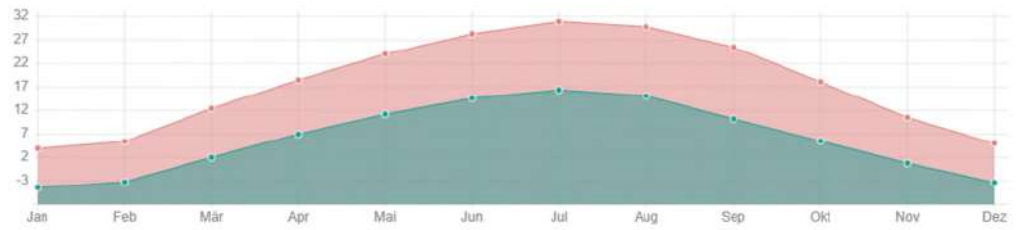


Figure 5: Average day and night temperatures in Sughd region

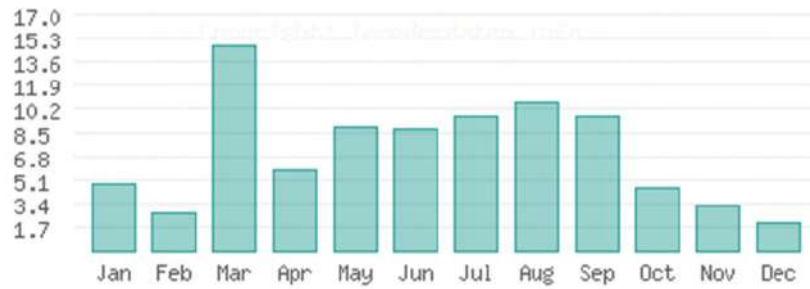


Figure 6: Sun hours per day in Sughd region

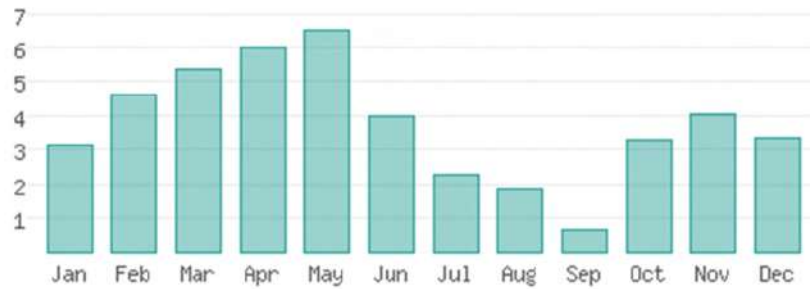


Figure 7: Rainy days per month in Sughd region

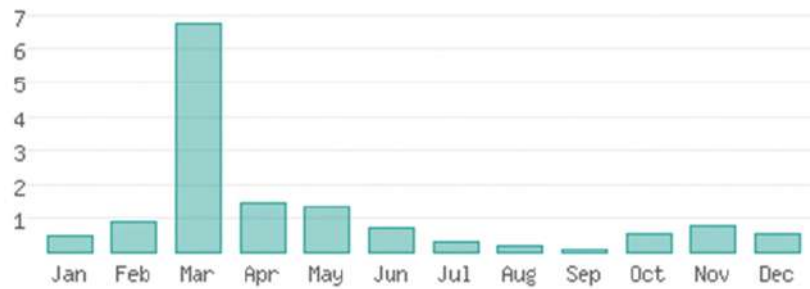


Figure 8: Precipitation (mm/day) in Sughd region

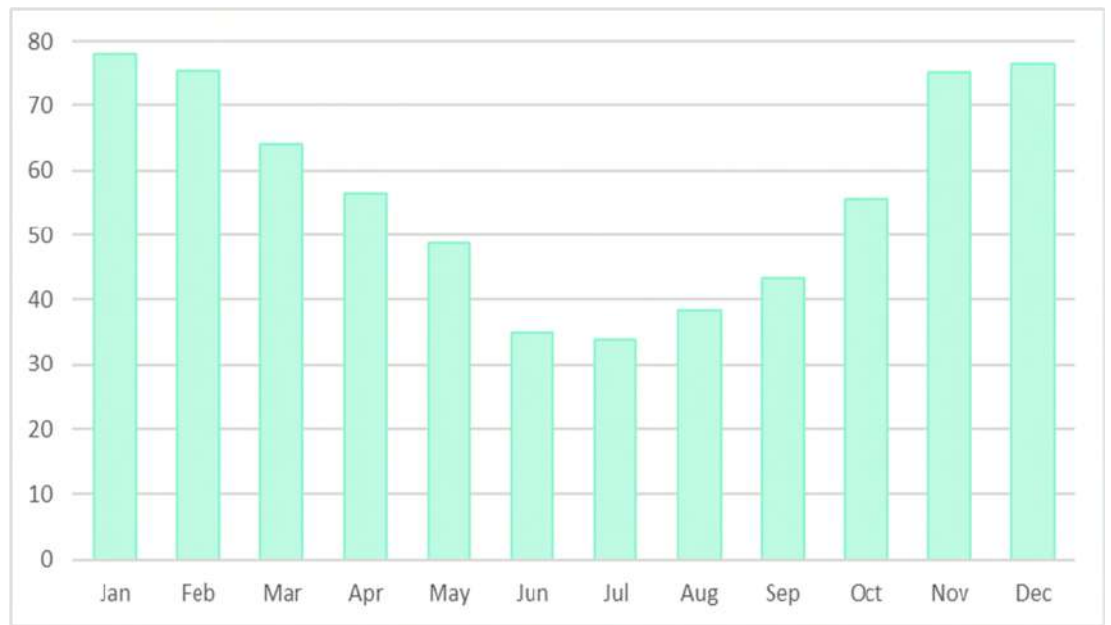
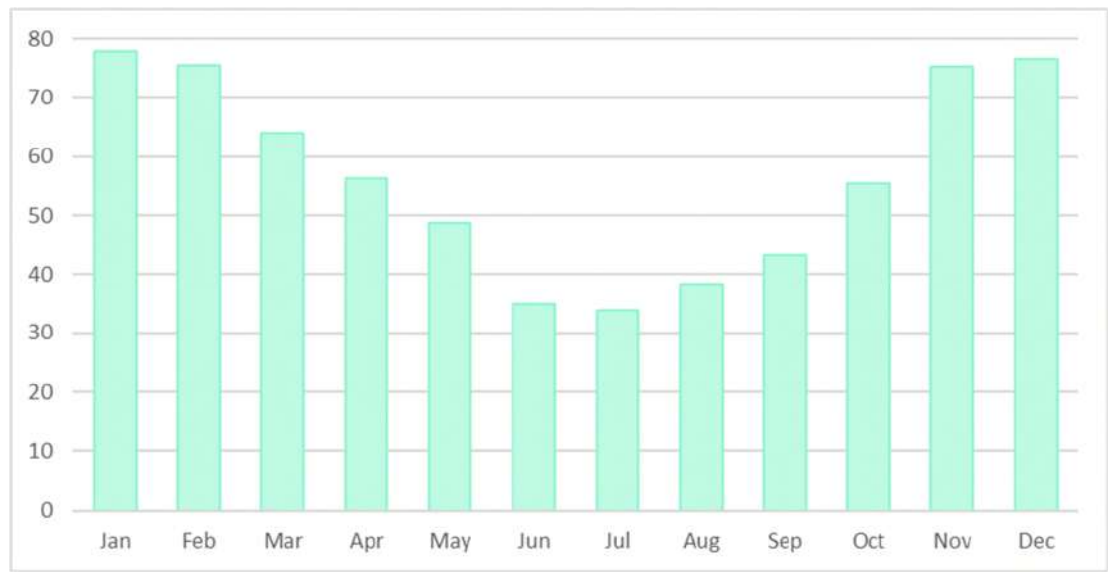


Figure 9: Relative humidity (%) in Sughd region

Wind data was obtained from hourly ground data from the Khujand meteorological station for 2019 through the National Oceanic and Atmospheric Research Administration of the National Centers for Environmental Information.

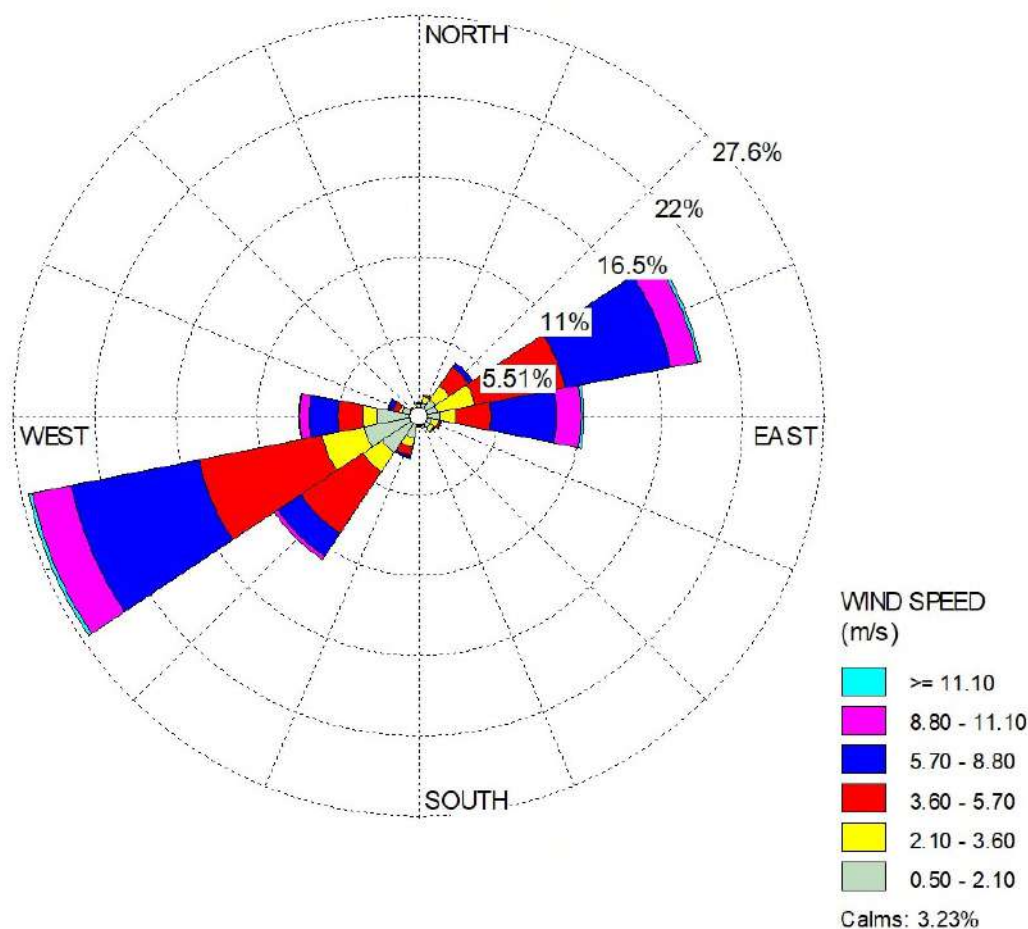


Figure 10: Wind rose in the Sughd region according to the Khujand Meteorological Station (2019)

5.1.8. Natural disasters

In the Sughd region, the largest number of natural disasters and related casualties occurred in the districts of Penjikent, Asht and Isfara. The highest frequency of mudflows is observed in the Asht district.

As can be seen from the seismic hazard map of Tajikistan, shown in Map 1 of Appendix 2, the Sughd region is located in zone 8 of the seismic intensity scale on the Medvedev–Sponheuer–Karnik scale.

5.1.9. Biodiversity and natural life

Flora

Comb, camel thorn, psoralea, marshmallow and other plants are ubiquitous in the region, some of which are of great feed importance for the Gissar and Astrakhan sheep bred here, as well as other animals. In mountainous areas, juniper, apple, walnut, pistachio, almond, rose hip, astragalus, barberry and cotoneaster are found in the wild. The forest distribution map of the Sughd region is presented in Figure 9.

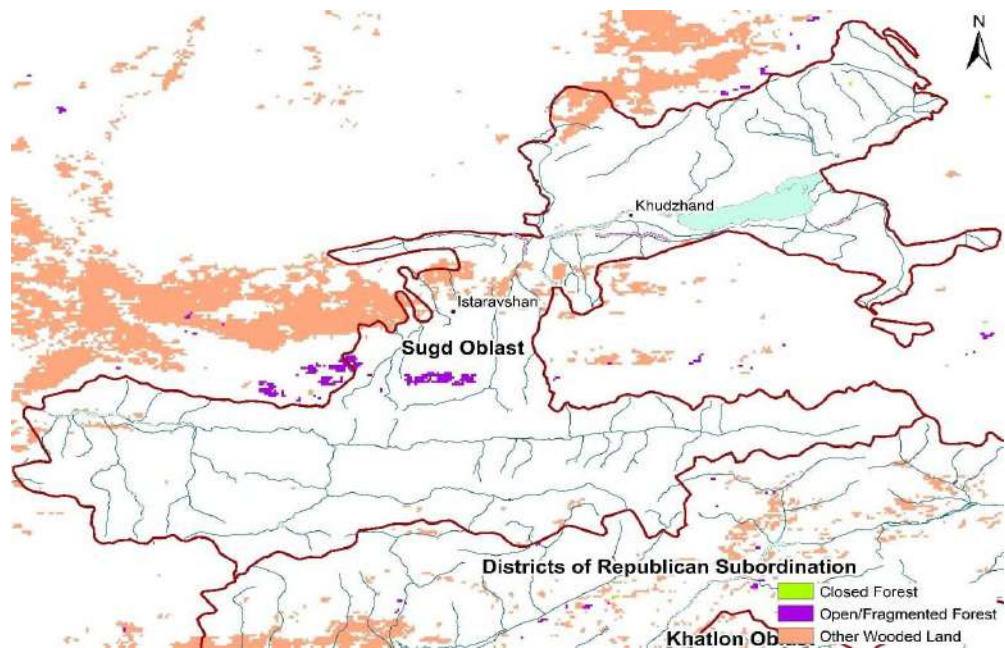


Figure 11: Distribution of forests in Sughd region

The impact on biodiversity at this site is negligible as it is located in an industrial area.

Fauna

The territory of the ALC in the Sughd region is not a habitat for protected species of animals listed in the Red Book. Of the wild animals in this area, there are:

Reptiles:

1. Round head takyr.
2. Steppe agama.
3. Patterned runner.
4. Oriental boa constrictor.



Eastern boa constrictor.



Round head takyrka

Birds:

1. Crow.
2. Common starling.
3. House sparrow.
4. Field sparrow.
5. Barn swallow.
6. Little dove.
7. Ringed dove.
8. Gray blue.
9. Common magpie.



Common magpie



Crow



Common Starling



House sparrow

5.1.10. Specially protected areas

Protected areas in Sughd region are presented in Table 9 along with the area of protected area, IUCN protection category and type of designation and year of establishment.

The closest protected area to the project areas in the Sughd region is the Kairakkum reservoir. The Kairakkum reservoir has a surface area of 523 km², its length is 56 km, and its maximum width is 15 km. Its maximum depth near the dam at the western end is 25 m; the average depth is 8 m. The 520 km² area of land encompassing the reservoir and its surroundings has been designated as a Ramsar site because it supports significant populations of different bird species, either resident, wintering, breeding or migratory. These include mallards, little cormorants, saker falcons, white-winged vultures, great bustards, waddles, common cranes, pale-backed doves, pale-backed owls, Egyptian nightjars, common crows, white-winged woodpeckers, great tits, desert larks, striped bush nightingales, nightingales Sykes, Asian desert nightingales, saxaul sparrows and dun finches.

Table 6: Protected areas in Sughd region

Name	Assignment status type	Year of status assignment	Area, km ²	IUCN category
Oktosh	Nature reserve	1977	150.0	IV
Iskanderkul	Nature reserve	1969	300.0	IV
Kusavli-sai	Nature reserve	1959	198.4	IV
Sai-Vota	Nature reserve	1970	42.0	IV
Zeravshan	Nature reserve	1976	23.8	IV
Kairakum reservoir	Ramsar site	2001	520.0	Not indicated

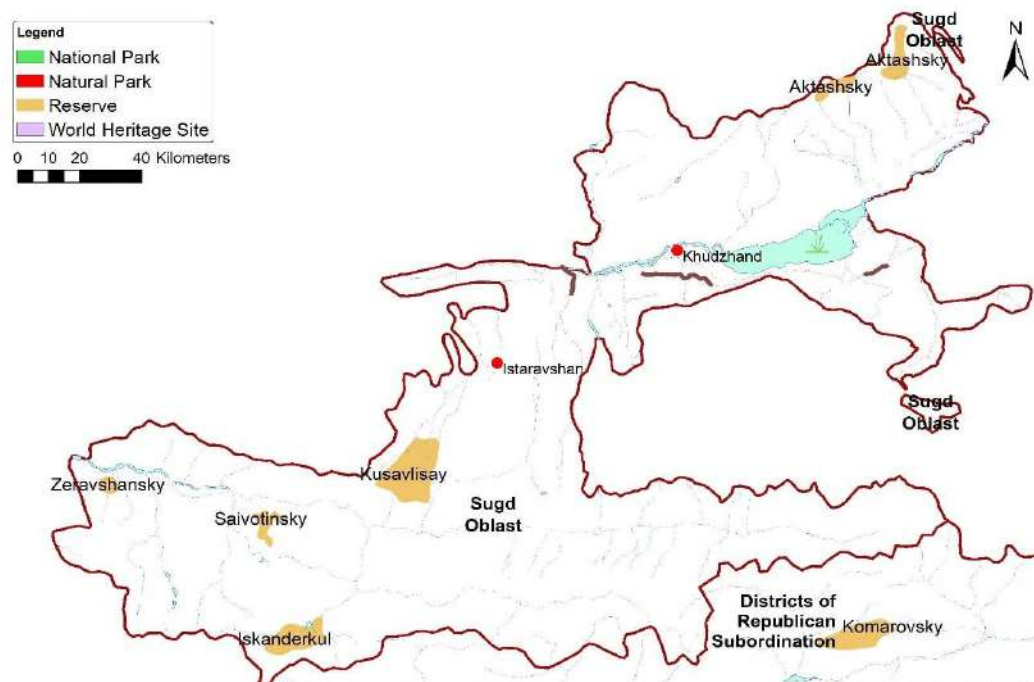


Figure 12: Specially Protected Areas in Sughd Region

5.1.11. Cultural, archaeological, ritual and historical resources

At the moment, no cultural heritage has been recorded in the project area and the project does not pose any impacts/risks.

5.2. Socio-economic data

5.2.1. Population

According to TAJSTAT, in 2022, 2,823,900 people lived in the Sughd region, of which 1,319,100 (49.67%) were women. The urban area of Sughd was home to 657,700 (24.7%) of this total population. The remaining 2,166,200 people live in rural areas. The population density in Sughd is 105.5 people/km². Population growth in Sughd during the period 1992-2019 is shown in Figure 4-12. In 2019, it was registered that 208,400 people lived in the Kanibadam city, 139,200 people in the Spitamen district, and 374,300 people in the B. Gafurov district.

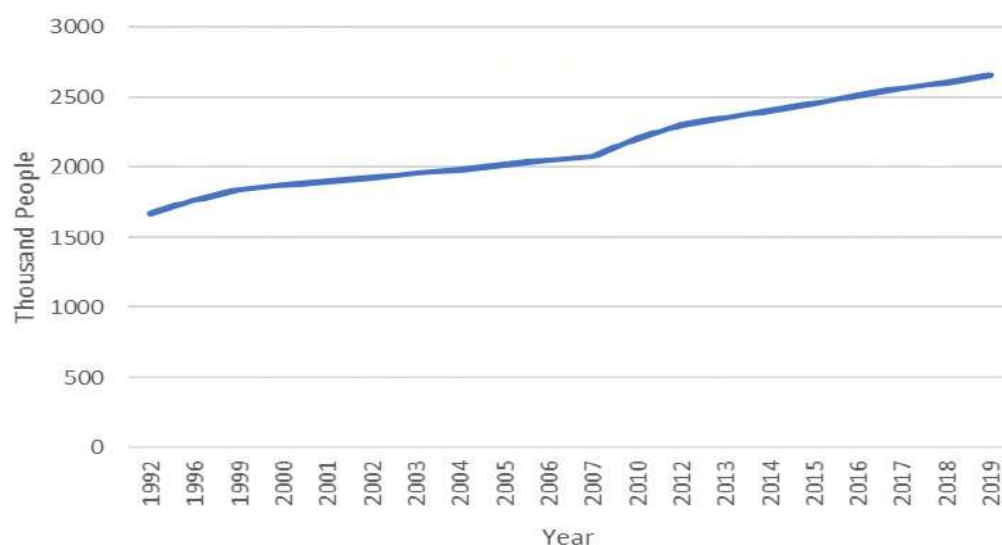


Figure 13: Population growth in Sughd region between 1992 and 2019

The population under the age of 30 is 1,568,700 people, of which 766,00 (48.8%) are women in the Sughd region.

The average registered number of family members of households in Sughd region was 6.53 in 2017. The percentage not working, which is the age-to-population ratio of those not typically in the labor force in that area, is 64.1%. The infant mortality rate in the Sughd region is 25.6 per thousand people.

Table 7: Age composition of the population in Sughd region (2019)

Age group	Population (per 1000 people)		
	Male	Female	Total
<1	33	30	63
1-4	136.4	121.1	257.5
5-9	161.5	152.0	313.5
10-14	129.5	122.6	252.1
15-19	111.6	107.9	219.5
20-24	116.0	115.8	231.8
25-29	114.7	116.6	231.3
30-34	115.2	113.5	228.7
35-39	90.7	88.9	179.6
40-44	73.5	72.9	146.4
45-49	64.0	65.5	129.5
50-54	58.4	60.9	119.3
55-59	53.1	56.4	109.5

60-64	35.7	39.2	74.9
65-69	21.0	24.8	45.8
70-74	9.4	11.2	20.6
75-79	7.9	9.3	17.2
80-84	4.7	6.3	11.0
84-89	2.2	3.0	5.2
90-94	0.7	1.1	1.8
95-99	0.1	0.1	0.2
100>	-	-	-
ИТОГО	1339.	1319.1	2658.4

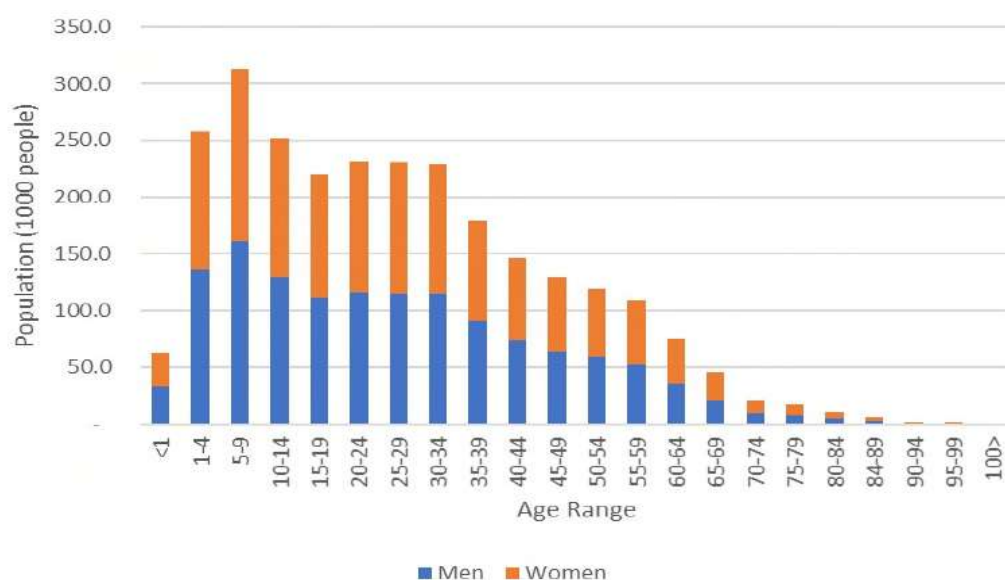


Figure 14: Age composition of the population in Sughd region (2019)

According to a study by the International Organization for Migration (IOM) on “Environmental Degradation, Migration, Internal Displacement and Vulnerability of Rural Areas of Tajikistan”, environmental reasons are more significant for migration decisions for residents of the Sughd region than for the population of other regions of Tajikistan. More than half of the respondents (54.6%) from the Sughd region said that people migrate due to drought. Soil degradation is also the main driving factor for migration in the Sughd region with a coefficient of 45.5%. Conflicts over natural resources, unstable harvests and poor water quality are also important problems for population migration in the Sughd region.

5.2.2. Gender Based Violence

Polygynous unions are not common in Tajikistan. Overall, 3% of women report that their husband (or partner) has other wives. Almost all women in polygynous unions report their husband has only one other wife. The proportion of polygynous unions increases with age,

from less than 1% among women age 15-24 to 5% among women age 40-44. Women in Khatlon (5%), women with no education or only a primary education (4%), and women in the lowest wealth quintile (4%) are most likely to report that they have cowives.

Estimates of the prevalence of domestic violence range from one-third to one-half of women in Tajikistan having regularly experienced physical, psychological or sexual violence. The 2017 TjDHS disclosed that, in a sample of more than 4,400 women ages 15–49, almost one in five reported having experienced emotional, physical, or sexual violence from their husband (24%); 17% of those who had experienced physical violence reported that an incident had taken place within the last 12 months, and 2% of women disclosed that they had experienced sexual violence at least once.

Current husbands, or partners, and former husbands, or partners, are the most likely to use physical violence (named by 90.9% of women). There is no profile of a “typical” survivor of domestic violence, since women in all demographic categories experience it. Girls who are underage when married are thought to be especially vulnerable to violence from their husbands or their families. The Law on the Prevention of Domestic Violence and subsequent State Program for the Prevention of Domestic Violence for 2014–2023 led to a formal response program for domestic violence, expansion of legal protection for survivors, and dispelling the widespread notion that domestic violence is a private matter. Both state and civil society run facilities provide aid to survivors of gender-based violence (GBV) through support and crisis centers that offer shelter as well as legal and psychological counselling. Though more latent, human trafficking is another type of GBV. In 2013, in recognition of the seriousness of domestic violence, Tajikistan enacted the Law on the Prevention of Domestic Violence. In the same year, the Code of Administrative Offences was amended to include articles specifying liability for violation of the requirements of this legislation and for any violation of a restraining order. In addition, the State Programme for the Prevention of Domestic Violence is working to strengthen various mechanisms that have been put in place to prevent domestic violence. In order to implement the State Programme, the information and consultation services are offered by the Departments on Women and Family Affairs throughout the country, including the project target areas.

5.2.3. Vulnerable Groups

Vulnerable groups are those that experience a higher risk of poverty and social exclusion than the general population. Ethnic minorities, migrants, disabled people, the homeless, those struggling with substance abuse, isolated elderly people and children all often face difficulties that can lead to further social exclusion, such as low levels of education and unemployment or underemployment.

In 2006, Tajikistan adopted the concept of social protection, which provides for a set of state budget funded measures and proposes a gradual extension of minimum levels of social protection. The concept suggests two separate but interrelated approaches for the social protection system. The first approach is of compulsory state social insurance for different categories of employed people who receive income from labour, professional and entrepreneurial activities. The second approach is of targeted social assistance to vulnerable groups and segments of the population that do not have regular sources of income.

At present social assistance takes the form of state-financed benefits and subsidies for special categories of citizens such as veterans, people with disabilities, children,

unemployed people and poor families, among others. The biggest social assistance programmes in terms of funding and outreach are the social pensions for old age, disability and survivors and the Targeted Social Assistance (TSA) for poor families. Since 2011, the country has been implementing important social assistance reforms that focus on consolidating old and fragmented social assistance schemes into a single benefit package, along with the development of an improved mechanism for more effective targeting. TSA is based on specific demographic and socioeconomic indicators of a household and is designed to minimize human intervention in the decision making on the benefit award. The formula is configured to select the poorest 15% of the population, which is approximately the rate of extreme poverty in Tajikistan. Now it covers 40 (including 1 out of 5 project areas-Balkhi) out of 67 districts of the country. It provides each registered household with an unconditional cash benefit of TJS 400 per year. Eligibility criteria include the total number of family members, the numbers of disabled persons and of CwD, the number of children under age 15, living conditions and household income. Persons with disabilities and other health conditions are also entitled to monthly social welfare benefits regardless of their gross per capita family income.

During the project implementation the vulnerable households to be affected by the Project are entitled for additional compensation based on vulnerability criterion set for the project during the Detailed Measurement Survey to be conducted during preparation of site-specific Resettlement Action Plans. Attention will be paid to socially vulnerable groups, such as ethnic minorities, female headed households, elderly households with no means of living, households with disabled head of household /or the household members, extended families with more than five dependent children below 15 years etc. and appropriate assistance will be provided to help them adapt to project-related changes.

The concept of child protection in Tajikistan currently relates to limited income support and health services rather than to an individualized approach to community care, family support and promoting opportunities for ordinary living and protecting children from harm as required by Article 19 of the UNCRC. Decisions on children's placement in institutions and on when they should return to their families are still being left to different organs at local or regional levels and the 'one-stop shop' model facilitating gate-keeping is not yet functioning. Foster care, guardianship or other family type care is still underdeveloped.¹

The percentage of households headed by women is growing—often driven by labor migration.² Focus group discussions in the target jamoats showed that rural women coped with traditionally male-led responsibilities, including household maintenance and budgeting, and tending of fields and animals, on top of their traditional roles as caregivers to children and the elderly. These additional duties limit their participation in education and income-earning activities outside the home.

During the social research conducted to assess the potential implications of the project on marginalized communities, such as people with disabilities and minority ethnic groups, it was found that no specific groups were identified as being directly impacted by the project in the area.

¹ At Home or in a Home, UNICEF, 2010

² Asian Development Bank, Gender Assessment (2016).

5.2.4. Education

In the Sughd region, in the districts of B. Gafurov, Spitamen and city of Kanibadam, according to statistical data, there are 68 preschool institutions.

There are a total of 8,120 students enrolled, of which 3,572 (44%) are female students. The number of secondary schools is 176.

During the study period in the 2019/20 academic year, the total number of students in secondary schools was 139,648 people, of which 62,841 (44%) were female students.

The number of technical schools in the districts of B. Gafurov, Spitamen and city of Kanibadam of the Sughd region is 5. The total number of students is 2250 people, of which 1462 (65%) are female students.

5.2.5. Infrastructure

Basic information about the types of water supply technologies used in the Sughd region and indicators of population coverage with water supply services is presented in the table below. According to statistics from the Republican Sanitary and Environmental Services, compiled between 2015 and 2018, approximately 75% of the total population of the Sughd region was served by communal centralized water supply systems. People without public water supply obtain water from more or less protected point sources, such as wells (3.8%), shallow wells (1.0%) and springs (6.0%), or from open sources (21.0%), such as small canals ("aryks"), irrigation canals, rivers, lakes and imported water (0.9%), without any treatment before consumption. In 2018, the total volume of water supplied to the Sughd region is 123.4 gm³/year, of which 27.2 gm³/year is treated. Losses and unaccounted volumes of water consumption amount to 7.8 gm³/year, which is 6% of the total water supply. In the same year, the total domestic water consumption per capita in the Sughd region was 17.8 m³.

Overall compliance with WHO guidelines and Tajikistan national standards for heat-resistant coliforms, fluoride, arsenic and nitrates corresponds to 85.6% and 44.9%, respectively, in the Sughd region for municipal water pipes. The total length of water supply lines is 1456.3 km, and the water distribution network is 1398.3 km in Sughd region, of which 377.7 km had to be replaced in 2018.

Table 8: Coverage of water supply services in Sughd region

Types of water supply	Population served (%)
Municipal water supply	67.1
Wells	3.8
Shallow wells	1.0
Springs	6.0
Imported water	0.9
Open sources	21.0

Municipal solid waste is collected from designated garbage sites in residential areas, which are generally equipped with large garbage containers. According to the data received, in 2019, 75% of the population used this service in the Sughd region. Collected municipal solid waste is transported to 24 different landfill sites with a total area of 130.17 hectares in the Sughd region according to data for 2019.

5.2.6. Agriculture

In the north of the country, Tajikistan is part of the Sughd region, which stretches out in the form of a long finger, covering the southwestern part of the Fergana Valley along the Syrdarya River (the eastern part of the valley is in Uzbekistan). Surrounded from east to west by two mountain ranges - the Kuraminsky ridge from the north and the Turkestan ridge from the south, the valley has rich alluvial soil, and natural conditions are favorable for growing cotton and other warm-climate crops (grapes, apricots, etc.).

Agriculture in the hot Fergana Lowland is heavily dependent on irrigation. The warm temperatures and abundance of rivers in this valley make it a suitable region for growing cotton and to a certain extent rice. The Zeravshan Valley receives relatively high rainfall from the surrounding mountain ranges, but the temperatures are too low for successful cotton growing. Agriculture in the Zeravshan Valley is based on tobacco, grain crops, horticulture and livestock. Rainfed farming is possible in the Zeravshan Valley. This is an area where cereals (except rice), tobacco and flax are grown. Sheep grazing (mainly Karakul sheep) is common in the northernmost part of the Sughd region (Kurama Mountains). In the Sughd region, livestock farming complements the cultivation of agricultural crops, it is of secondary importance.

The Sughd region contributes to agricultural production (about 25% of the total agricultural production), Sughd ranks second in importance in cotton growing (30% of the area under cotton). In general, in the Sughd region, the area sown with grain crops is 21%. In the Sughd region, fruits and vegetables are grown - potatoes, vegetables, melons. Orchards and vineyards are grown mainly in the Sughd region. There are more than 50% of orchards in the Sughd region.

Sughd region ranks first in the production of rice, tobacco and fruits. The entire tobacco crop in Tajikistan comes from the Zeravshan Valley in the Sughd region. The area of pastures in the Sughd region in 2010 was 724,301 hectares. Summer pastures in this region amount to 403,361 hectares, and winter pastures make up one fourth of the summer pastures, which amount to 100,738 hectares. It was recorded that the number of large ruminants raised in Sughd region was 505,368 and the number of small ruminants raised in Sughd region was 1,181,833 in 2017.

The areas occupied by agricultural crops in the Sughd region are presented in the following Table 9.

Table 9: Areas occupied by agricultural crops in Sughd region (2017/19)

Crops	Area (ha)
Total grains	112 874
Winter wheat	32 585

Winter barley	10 746
Spring wheat	15 337
Spring barley	40 596
Corn	5 591
Rice	8 019
Total legumes	4 795
Potato	12 752
Total oil seeds	4 271
Cotton	58 996
Total	193 688

According to the data received, the amount of organic fertilizers used in the Sughd region in 2022 is 88.7 tons/year. While the amount of inorganic fertilizers in the same year is 19.1 tons/year, which is one fifth of the organic fertilizers used in the same region.

6. EXPECTED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The following sections provide an overview of the proposed impact assessment process that will be used for the current projects. This section presents the conceptual model that will be used to identify effects. The standardized approach is based on standard terminology to identify impacts and determine impacts, their significance, and mitigation or offset of said impacts.

The proposed approach for identifying impacts and evaluating impacts related to air, land, and water is based on the Source-Pathway-Recipient-Consequence (SPRC) model. This approach is commonly used in pollution studies, but it is very applicable to many of the elements considered in the impact assessment process.

The conceptual model of the SPRC is less effective for intangible elements of the environment. These include potential exceedances of statutory standards and themes, for example where human perception and design are considered, such as landscape and visual impact, where individual perceptions of beauty and scenic value are important.

The SPRC model reveals some important aspects of the terminology of the impact assessment process. First, the terms "impact" and "effect" are not synonymous and cannot be used interchangeably. As can be seen, an IMPACT is a change in an environmental variable. The size of the change can be determined objectively where the change can be measured or predicted, such as an increase in air emissions.

It is an IMPACT acting on a RECEPTOR that creates a consequence or EFFECT on that receptor.

To determine the level or importance of the consequence, two key aspects must be determined. These are:

- Characterizing the amount and nature of the impact; and
- Identifying valuable environmental receptors and their level of importance and/or sensitivity to change.

The following sections provide guidance on identifying valuable environmental receptors (VERs) and determining value/sensitivity.

6.1 Identification of receptors

Based on the SPRC model, it is necessary to identify receptors that will be susceptible to changes in the environmental variable.

The valued environmental receptors (VERs) and their sensitivity to change may be different for each discipline. Thus, each discipline must identify its own set of VERs and assign

values to each of them.

Valued environmental receptors can be defined as:

- Environmental elements that are of value to the functioning of natural or human-made systems (i.e. areas or elements of ecological, landscape or cultural-historical value, soils and sediments, air and water bodies); and
- Human receptors, such as people (i.e., users of housing, recreational facilities, places of employment, and public facilities) and human systems (e.g., labor market).

In addition, receptors will include legislative and policy standards and values. For example, air quality limits, noise standards and planning policy requirements.

VERs are described in terms of their spatial significance and/or the sensitivity of that receptor to change due to potential impacts.

The ecological value (or sensitivity) of identified receptors will be determined using the criteria in Table 10.

Table 10: Value and sensitivity of recipients used in the impact assessment

Value / sensitivity	Value description
International / Extremely sensitive	High importance and rarity, international scope and limited replacement potential (e.g. hospital receptor). Extremely sensitive to change.
National / Highly sensitive	High importance and rarity, national scale and limited replacement potential (e.g. residential receptor) - very sensitive to change
Regional / Moderately sensitive	High or medium importance and rarity, regional scale, limited replacement potential (e.g., commercial or recreational receptor) and moderate sensitivity to change
Local / Low sensitivity	Low importance and rarity, local scale and insensitive to change.

VERs formulation for a project is a fundamental building block of the impact assessment process. Only VERs should be considered for determining the significance of an effect. Identifying and assessing VERs is the first step in the assessment process.

6.2 Description of impacts

Amount of Impact. As noted above, an impact is a change in the state of the environment caused by project activities. In general, this change can be measured or estimated in some way. For example, a 2 dBA change in sound levels or a 20 mg/m³ increase in the surface concentration of an air pollutant. For some topics, the measure may be the area of land that will be affected or the number of trees that will be lost, etc. If possible, the size of the impact should have a physical dimension.

Other aspects of impact. While the size of the change in environmental parameters is an

important aspect of exposure, there are other aspects that will determine the severity of the impact when a receptor is exposed.

For this impact assessment, in addition to the size of the impact as described above, the following aspects are taken into account:

- Level of Impact;
- Duration of impact;
- Frequency of impact;
- Probability of impact occurrence; and
- Reversibility of the impact.

The assessment process used in this impact assessment process will utilize a specific points system to allow for a systematic and transparent process to determine the scale of impact identified.

The following sections present the scoring system to be adopted and its rationale.

Extent of impact or area of influence. This refers to the physical extent in which the impact will occur. A greater extent will tend to result in a higher risk of significant impacts than a highly localized area of influence. The classification of this variable and the scores assigned are shown in Table 11.

Table 11: Classification of degree of impact and points awarded

Classification	Description	Examples	Score
Highly local	The area of impact is highly limited and is likely to occur only at the point of impact and not affect receptors outside of this immediate area.	Minor increase in noise levels during construction, not extending beyond the construction site.	1
Local	The area of impact is within the project area or in the immediate vicinity of the project.	Loss of local and general habitat on the site during clearance activities.	2
Regional	The area of impact extends to a regional scale, affecting areas outside the project area and the wider environment.	Property or land price changes in the region due to the construction activity. Emissions to the air that affect extensive areas.	3
National	The area of impact extends to a national scale.	Generation of special wastes that cannot be handled within the country's existing facilities/capabilities.	5
International	The area of impact would cross the borders.	Generation of greenhouse gases that affect the global climate.	7

Durations of the impact effect. The strength of the impact will increase as the duration of the impact increases. It is important to note that the duration of the impact is not synonymous with the duration of the event that caused the impact. Duration is determined by how long the impact will last. For example, a containment loss event resulting in a chemical spill may last as little as 5 minutes, but exposure to a chemical released into the

environment will last much longer depending on the type of chemical, the location and nature of the spill, and any remediation efforts.

The classification of this variable and the points assigned are shown in Table 12.

Table 12: Classification of exposure duration and assigned scores

Classification	Description	Examples
Transitional process	Less than 1 day	Delivery of one major item of equipment affecting the local road network.
Very short term	1 - 30 days	Temporary closure of a road or other access.
Short term	1 - 12 months	Dust emissions during site clearance.
Medium	15 years	Traffic impacts from construction of a major project.
Long term	More than 5 years	Changes in air quality due to process emissions.
Permanent	Permanent	Removal of natural vegetation that cannot be recreated.

Frequency. An event such as an explosion during site preparation activities may be short **term, but if the event is repeated many times during the project, the magnitude** of the impact will be considered magnified. The classification of this variable and the points assigned are shown in Table 13.

Table 13: Classification of exposure frequency and assigned scores

Classification	Description	Examples
Once	An event causing an impact occurs only once during the lifetime of the project.	Soil and habitat clearing at the start of the project.
Rarely	Rare event during the life of the project.	Increased noise or air emissions due to emergency situations.
Infrequently	Event that is expected to occur but is not a common occurrence under normal project conditions.	Increased emissions from the plant during regular maintenance and shutdown.
Frequent	Event will occur regularly throughout the project phase or throughout the life of the project.	Daily noise from steam barrels being blown off.
Continuous	Event that, by the nature of the project, is continuous.	Delivery of raw materials and removal of products from the facility on a daily basis.

*For single events, a score of 1 is assigned if the event does not result in a permanent irreversible impact if the impact is permanent; a score of 5 is used.

Probability. Impact assessment of some issues is based on risk assessment. Not all predicted impacts will occur, but they should be considered in the assessment process. In order to take this into account, a three-point likelihood scale was used and scored as follows:

- Definitely - 5
- High - 3
- Low - 2

Reversibility. If an impact can be easily reversed, its overall amount will be considered less if it cannot be remediated. For example, loss of natural habitat can never be fully reversed, but the visual impact of a wind turbine will be reversed at the end of its life when the turbine is dismantled and removed.

This impact assessment process uses a simple "Yes" or "No" score with corresponding scores of 1 and 5, respectively.

Impact Size. The following values have been assigned to the identified impact size:

- Low 3
- Medium 5
- High 8

For any impacts that do not exceed the significance threshold, the severity of the impact shall be negligible by definition.

The model estimates the overall magnitude of the impact. The estimation model for the variables described gives results ranging from 7 to 40. The impact assessment uses four-point terminology to describe the magnitude of the impact. This is presented in Table 14. The model describes the results of the variable assessment as follows.

- 7 – 15 Minor
- 16 – 23 Medium
- 24 – 31 Moderate
- 32 – 40 Significant

Table 14: Scale of impact criteria used in the impact assessment

Amount	Description of adverse effects	Description of positive consequences
Major	Loss of resource and/or quality and integrity, severe damage to key features, functions or elements.	Large-scale or significant improvement in resource quality; extensive restoration or enhancement; significant improvement in attribute quality.
Moderate	Significant impact on the resource but no adverse impact on integrity, partial loss/damage to key characteristics, features or elements.	Benefit or addition of key characteristics, features, or elements; improvement in attribute quality.
Minor	Some measurable change in quality or vulnerability of attributes, minor loss or alteration of one (possibly more than one) key characteristic, feature or element.	Minor benefit or addition of one (perhaps more than one) key characteristic, feature, or element; some positive impact on an attribute or reduced risk of negative impact.
Minor	No loss or very minor loss or detrimental change to one or more characteristics, features or elements.	Very minor benefit or positive addition of one or more characteristics, features or elements.

Assessing Significance. A significant effect can be broadly defined as an effect that should be brought to the attention of those involved in the decision-making process. A two-dimensional matrix based on the above parameters of effect magnitude and receptor significance/sensitivity is used to determine the significance of an effect.

The proposed assessment will use the matrix for determining the significance of an effect

as presented in Table 15. Thus, significance is a function of the value or sensitivity of the receptor that is considered to be defined in Table 10 and the consequences of the impacts defined in Table 14.

Table 15: Matrix for determining the significance of environmental impacts

	International / Extreme	National / High	Regional / Moderate	Local / Low
Major	HIGH	HIGH	MEDIUM	LOW
Moderate	HIGH	MEDIUM	MEDIUM	LOW
Minor	MEDIUM	MEDIUM	LOW	INSIGNIFICANT
Minor	INSIGNIFICANT	INSIGNIFICANT	INSIGNIFICANT	INSIGNIFICANT

The following semantic definitions of significance terms "High", "Moderate" and "Low" were used in the impact assessment. Based on the terminology used in international principles and guidelines and the geographical context of impact:

- High - an environmental impact of international or national significance that is irreversible or unprecedented;
- Medium - an environmental impact that is of regional significance and/or one that can be readily addressed through intervention and is limited to the site boundary and immediate surrounding area;
- Low - Environmental impacts that are important only in the local context, that can be easily mitigated, and that occur only within the project boundary; and
- NS - Environmental impacts that are considered insignificant.

Significant adverse effects occur where valuable or sensitive receptors or multiple receptors are exposed to impacts of significant magnitude and duration. Some impacts will be temporary, others are permanent and will be specified in the assessment.

6.3. Mitigation

The Mitigation Hierarchy in the World Bank Environmental and Social Framework aims to effectively address risks and impacts associated with projects. The hierarchy consists of the following steps:

1. Anticipate and avoid risks and impacts: The first step is to identify potential risks and impacts and take measures to avoid them whenever possible. This proactive approach helps prevent negative consequences before they occur.
2. Minimize or reduce to acceptable levels: In cases where avoidance is not feasible, efforts should be made to minimize or reduce the risks and impacts to acceptable levels. This involves implementing mitigation measures to lessen the adverse effects on the environment and affected communities.
3. Mitigate and improve livelihoods: Once risks and impacts have been minimized or

reduced, the focus shifts towards mitigating any remaining effects. This includes implementing measures to improve or restore livelihoods of affected communities, ensuring that they are not left worse off as a result of the project.

4. Compensate or offset residual impacts: In situations where significant residual impacts still exist despite mitigation efforts, compensation or offsetting measures may be necessary. This step involves providing appropriate compensation or implementing offset projects to counterbalance the remaining negative effects.

It is important to note that compensation or offsetting should only be considered when technically and financially feasible. The ultimate goal of the mitigation hierarchy is to ensure that projects are carried out in a manner that minimizes harm to the environment and affected communities, while also promoting sustainable development. Figure 19 shows the mitigation hierarchy.

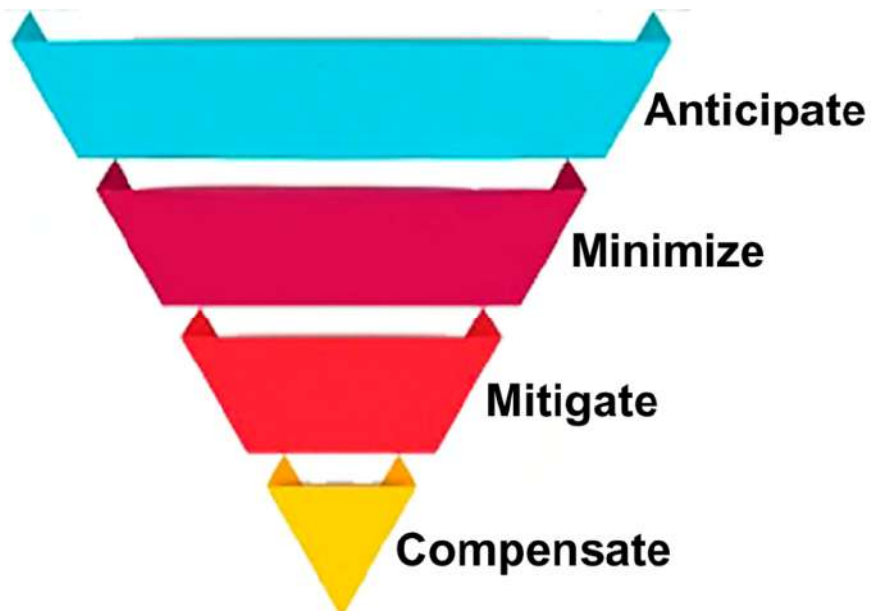


Figure 15: Mitigation hierarchy.

Mitigation measures outlined in this document are mandatory and will become part of the contract documents.

For the results of the assessment, please refer to the following sections.

Through the assessment process, a total of fourteen valuable environmental receptors (VERs) were identified. For a comprehensive list of these and their attributed value or sensitivity to change, see Table 16. Potential effects were not identified for all these VERs, but they are presented for completeness.

Table 16: Valued environmental receptors

No.	VERs Description	Value / sensitivity
1	Agricultural land	Local / Low
2	Trees on ALC territory	Local / Low

3	National air quality standards	National / High
4	Potential unknown underground artifacts	National / High
5	Worker health and safety	National / High
6	National and international legislative standards on noise	National / High
7	Local demographics	Local / Low
8	Local revenues	Regional / Moderate
9	Access to facilities	Local / Low
10	Soils	Regional / Moderate
11	Watercourses - water quality	Regional / Moderate
12	Groundwater	Regional / Moderate
13	General environment	Regional / Moderate
14	Health of the local population	National / High

Tables 17 and 18 provide a breakdown of the impact assessment results. The tables are presented by environmental aspect of construction and operation. Each table lists the impact identification number, a description of the expected impact, the results of the impact scoping assessment, the VERs that will be affected and their significance/sensitivity, and the predicted significance of the impact without mitigation. The approved mitigation measures are then listed and finally the predicted significance after mitigation measures are applied.

Table 17: Sensory Receptor Assessment

Description	Sensitivity value	Notes
Housing and residents	National/Higher	Residential areas under construction
Commercial buildings	Local/Low	Light commercial activity
Local road network and users	Local/Low	

Table 18: Potential Impact Assessment and Mitigation Measures

Impact ID	Description of impact	Description of Environmental receptors	Value of Environmental receptors/sensitivity	Value before mitigation	Mitigation Measures	Value after mitigation
Pre-construction						
1	Impact on the acquisition of land and public assets, for example through loss of public assets and damage to property.	FEZ and Organizations on the territory of FEZ	Local/Low	Minor	Construction on state land. Land acquisition Access roads will be designed with the minimum required width within the right-of-way (ROW) whenever possible.	Minor
2	Land Clearing and Tree Removal: To make way for an ALC, trees and vegetation may have to be cleared, resulting in tree removal. This could lead to loss of wildlife habitat and contribute to climate change by reducing carbon uptake.	FEZ and Organizations on the territory of FEZ	Local/Low	Minor	1. Sustainable land use planning. Prioritize the use of already cleared or degraded land for construction to minimize the need for deforestation. Conduct a thorough assessment of existing land and consider alternative sites that have minimal impact on forests and wildlife habitat. Collaborate with local communities: Involve local communities in decision-making processes and provide them with alternative livelihood opportunities that do not depend on deforestation. Develop partnerships with local organizations and indigenous communities to promote sustainable land management practices and ensure their participation in conservation efforts.	
Construction						

Impact ID	Description of impact	Description of Environmental receptors	Value of Environmental receptors/sensitivity	Value before mitigation	Mitigation Measures	Value after mitigation
3	Impact on historical and archaeological sites, such as damage to relics and artifacts during work	Archaeological artifacts and cultural heritage objects	Regional/Moderate	Low	The Contractor will inform workers that if any relics are accidentally found, they must immediately stop any work in the area and immediately report the discovery to their supervisor..	Minor
4	Temporary destruction of existing roads, trails and driveways	Access roads	Local/Low	Minor	Special attention will be given to ensuring safety on roads and routes such as the main road and access road. The Contractor will be required to immediately restore excavated areas and any damaged areas of roads and paths.	Minor
5	Dust air pollution (PM10 or less) and air emissions from earthworks and vehicle traffic pose a nuisance and health risk to nearby communities.	Surrounding residential, commercial and institutional areas	National/Higher	Medium	The Contractor will be required to cover the materials with tarpaulins or other suitable materials during transport to prevent materials from spilling. Dirt roads, especially roads near residential buildings, will become wet in dry and dusty weather. A speed limit will be introduced for construction equipment. Construction equipment and vehicles will be regularly serviced to control air emissions during vehicle operation.	Minor
6	Noise and vibration from construction equipment causing excessive noise and nuisance to the public.	Workers and nearby residential, commercial and institutional areas	National/Higher	Medium	Construction work, in particular the operation of noise equipment, will be limited to daytime. Noise reduction devices will be installed in noise generating equipment. Drivers will be required to keep horns to a minimum and obey speed limits.	Minor
7	Potential for conflict to develop with some residents of local communities if they are marginalized by outsourcing workers who have a higher economic	In the project area and among residents of nearby settlements	Regional/Moderate	Low	Workers from local communities will be offered priority employment as unskilled labour. Workers will also be required to undergo regular screenings to minimize the risk of contracting and spreading HIV and STIs. Workers will be stationed locally to avoid social conflicts. Workers will be	Minor

Impact ID	Description of impact	Description of Environmental receptors	Value of Environmental receptors/sensitivity	Value before mitigation	Mitigation Measures	Value after mitigation
	status than local residents.				provided with cultural awareness training if they come from outside the region.	
8	Providing inadequate living conditions in the project area. Loss of labor productivity may result from the lack of appropriate living conditions in the project area.	Builders	National/Higher	Medium	Workers will be provided with adequate housing, sanitary and recreational conditions. The Contractor will provide drinking water, sanitation and cleaning supplies, kitchen and associated cooking facilities, and food rations that meet the requirements of the relevant labor standards of the Republic of Tajikistan or an acceptable international standard, whichever is acceptable.	Minor
9	Loss of cultural property due to digging foundations, trenches, etc.	Project region with rich cultural heritage	National/Higher	Medium	accidental discoveries must be notified to the PIU, which will inform the appropriate agency. Excavation workers should be informed of the low risk of the presence of underground artifacts and instructed in the procedures to follow if any artifacts/remains are discovered.	Minor
10	The use of hazardous materials may contaminate the soil and nearby waterways. Improper handling, storage or use of hazardous materials poses a significant health risk to workers and nearby residents;	Workers and nearby residential areas, aquatic and terrestrial ecosystems	Regional/Moderate	Medium	Ensure that the safe storage of fuels and other hazardous substances complies with national and local regulations to prevent soil and water contamination. Fuel storage tanks should be located on an impervious surface with a bund to collect spills, the capacity of the bund should be 110% of the tank capacity. Fuel tanks, etc. should not be located closer than 50 m from the body of water. Ensure that all storage containers are in good condition and properly labeled; Waste oil and other residual toxic and hazardous materials must be disposed of at an authorized off-site facility; Ensure that spill cleanup materials (e.g., absorbent pads, etc.) specifically designed for the storage of petroleum products and other hazardous substances are available	Minor

Impact ID	Description of impact	Description of Environmental receptors	Value of Environmental receptors/sensitivity	Value before mitigation	Mitigation Measures	Value after mitigation
					where such materials are stored; Leaks, if any, will be repaired immediately with extreme care to leave no traces. Leaked waste will be disposed of in approved landfills.	
11	Generation of construction waste such as excavated soil.	Land allocated for the project	Low	Minor	Excess excavated material/soil cut from construction will be used as backfill material for low-lying areas in accordance with the site development plan.	Minor
12	The generation of construction waste, such as solid waste, inert construction waste, during the construction process will lead to contamination of land and receiving water bodies.	Land and any nearby body of water (drainage channels) Exceeding local capacity to treat or dispose of such waste	Low	Minor	The Contractor will develop and implement a Waste Management Plan. Excess excavated material/soil cut from construction will be used as backfill material for low-lying areas in accordance with the site development plan.	Minor
13	Impact on public health and safety, for example through risks of accidents to surrounding communities from vehicles transiting on a major highway.	Locals	National/Higher	Medium	The Contractor will develop a Traffic Management Plan. Designations and corresponding speed limits Require suppliers to ensure that vehicles transporting construction materials are kept in good condition. safe operating condition, loads must be secured, and all loads containing volatile materials (such as excavated soil and sand) must be covered with tarps. All drivers and equipment operators act responsibly.	Minor
14	Health and safety hazards associated with the operation and use of heavy equipment, fuel refueling hazards, and hazards resulting from	Builders, contractors, suppliers	National/Higher	Medium	The Contractor will be required to implement a construction health and safety plan in accordance with the World Bank EHS Guidelines (http://www.ifc.org/ehsguidelines) as a	Minor

Impact ID	Description of impact	Description of Environmental receptors	Value of Environmental receptors/sensitivity	Value before mitigation	Mitigation Measures	Value after mitigation
	road traffic accidents.				<p>minimum standard.</p> <p>The Contractor will appoint a Health, Safety and Health Officer to ensure implementation of the plan.</p> <p>Workers will be provided with a safe working environment, including safety training, protective equipment appropriate to the task they are performing, medical equipment and first aid equipment, and a person qualified in first aid.</p>	
Operation						
15	Impact on public health and safety from unauthorized access.	Locals	National/Higher	Medium	Watchmen/security personnel will be hired to guard the facilities 24/7. This will minimize risks to public safety.	Minor
16	Energy Consumption: Agro logistics centers require large amounts of energy to operate storage facilities, refrigeration, lighting and other processes..	Locals	National/Higher	Medium	<p>1. Energy efficiency: Introduction of energy-efficient technologies and equipment, such as LED lighting, intelligent energy management systems, energy-efficient cooling and heating systems. This will reduce overall energy consumption and reduce the load on the power grid.</p> <p>2. Use of renewable energy sources: Installation of solar panels or wind generators to generate part or all of the energy required to operate the agro logistics center. This will help reduce dependence on traditional energy sources and reduce greenhouse gas emissions.</p> <p>3. Process optimization: Analysis and optimization of processes in warehouses and other premises to reduce excess energy consumption. For example, the use of automatic lighting control systems that turn off lights in empty rooms or control their brightness depending on the presence of people.</p> <p>4. Employee training: Conducting training</p>	

Impact ID	Description of impact	Description of Environmental receptors	Value of Environmental receptors/sensitivity	Value before mitigation	Mitigation Measures	Value after mitigation
					<p>programs for employees of agro logistics centers on energy efficiency and proper use of energy resources. This will help increase employee awareness and responsibility regarding energy conservation.</p> <p>5. Monitoring and analysis: Implementation of energy consumption monitoring and analysis systems to be able to track and manage energy consumption in real time. This will allow you to identify potential problem areas and take measures to eliminate them.</p> <p>Cooperation with energy suppliers: Establishing partnerships with energy suppliers to develop joint programs to reduce energy consumption and increase energy efficiency.</p> <p>Social responsibility: Conducting information campaigns and public events aimed at raising awareness about energy conservation and the importance of using renewable energy sources.</p>	
17	Waste Disposal: Agro logistics centers can generate large volumes of waste such as packaging materials, plastic containers and food scraps.	Locals	National/Higher	Medium	<p>1. Introduction of a system for separate collection and recycling of waste. This will allow you to effectively dispose of different types of waste, such as plastic, paper, glass and organic waste.</p> <p>2. Organization of composting of organic waste. This will produce high-quality compost that can be used in agriculture or landscaping.</p> <p>3. Introduction of a food waste recycling system. This may include the use of special biogasification plants, which convert food waste into biogas, which can be used to produce energy.</p>	

Impact ID	Description of impact	Description of Environmental receptors	Value of Environmental receptors/sensitivity	Value before mitigation	Mitigation Measures	Value after mitigation
					<p>4. Cooperation with processing enterprises. Agricultural centers can enter into contracts with waste processing companies to ensure their efficient disposal.</p> <p>5. Design packaging with recyclability in mind. Agro logistics centers can work with packaging manufacturers to create materials that are easily recyclable or have minimal environmental impact.</p> <p>Training and informing employees and visitors about the need for proper waste disposal. This may include training, information brochures and labeling of separate collection containers.</p> <p>7. Monitoring and evaluating the effectiveness of waste disposal activities. Agricultural centers must regularly analyze their performance and make adjustments to the waste disposal system if necessary.</p>	
18	Transfer of Invasive Species: Agro logistics centers can spread invasive plant and animal species into surrounding ecosystems	Locals	National/Higher	Medium	<p>1. Monitoring and control: Conduct regular monitoring of agro logistics centers and surrounding ecosystems to detect the presence of invasive species. If such species are detected, measures must be taken to control and destroy them.</p> <p>2. Employee training: Conducting training programs for employees of agro logistics centers on the identification and recognition of invasive species, as well as rules for preventing their spread.</p> <p>3. Establishing barriers: Introducing physical barriers, such as fences or barriers, to prevent the spread of invasive species from agricultural centers into surrounding ecosystems.</p> <p>4. Collaboration with conservation</p>	

Impact ID	Description of impact	Description of Environmental receptors	Value of Environmental receptors/sensitivity	Value before mitigation	Mitigation Measures	Value after mitigation
					<p>organizations: Establish partnerships with conservation organizations to develop joint programs to control and prevent the spread of invasive species.</p> <p>5. Social Responsibility: Conducting information campaigns and public events to raise awareness of the problem of invasive species and the importance of preventing them.</p> <p>6. Use of biological control methods: Use of biological control methods, such as the use of natural enemies of invasive species or biological agents to kill them.</p> <p>7. Research Collaboration: Participate in scientific research to study invasive species and develop new methods and technologies for their control.</p>	

6.4. Impact on design and construction preparation

6.4.1 Impact on physical resources

Physical impacts during the design and pre-construction phase are related to consideration of climate change and natural disaster impacts, impacts on topography, geology and soils, and impacts that may arise during project implementation due to inadequate inclusion of mitigation measures in the contract documents and capacity building/training of contractors at the beginning of the project.

A seismic impact to an agro-logistic center can have significant consequences on the agricultural supply chain, including disruptions in transportation, storage, and distribution of agricultural products. Constructing the agro-logistic center with seismic-resistant structures and materials can reduce the vulnerability to earthquakes. This includes using reinforced concrete, steel frames, and other seismic-resistant building techniques.

Impacts associated with inadequate inclusion of mitigation measures in the contract documents and lack of understanding of environmental issues can be addressed by properly incorporating the EMP into the bidding documents, and by ensuring that the EMP is updated as necessary after the detailed design phase.

Mitigation measures include:

- (i) Indicate in the bidding documents that the contractor shall engage personnel with appropriate qualifications and experience who will take responsibility for environmental management and safety issues at the working level, and monitor performance and review mitigation measures as the project progresses.
- (ii) EMP and any ESIA conditions, development consents and leases are included in the tender documents and mitigation measures budgeted accordingly.
- (iii) The Contractor shall submit a Site Specific Environmental Management Plan (SSEMP) based on the contractual EMP for approval by the PIU (i.e. site clearance, site drainage, waste and materials management, traffic, noise and dust management, etc.).

6.4.2 Impact on environmental resources

Major environmental impacts that may occur during the design and pre-construction phase are associated with projects that would require minor vegetation clearing. Ground ecology in the vicinity of the ALC is not characterized by the presence of invasive flora and fauna. Field inspections did not identify any species or significant habitats (i.e., critical or natural) that could be impacted. No protected sites have been recorded in the project area.

6.4.3 Impact on socio-economic resources

Loss of Land: During the ALC construction, no agricultural or urban land will be lost as the construction will take place on public land. However, if only a small amount of land is temporarily required, as in the case of the construction site, the impact would be very minor.

The impacts of land acquisition can be mitigated as follows:

- (i). All physical displacement of people, either on an individual basis or through the

acquisition of public property such as health clinics, mosques or other community centers, will not occur;

- (ii). Warehouses and construction camps shall be located on less expensive land or on public land.

6.5. Impact during construction

6.5.1 Impact on physical resources

Air Quality: Emissions from construction machinery and equipment will occur, although these will be temporary and are not expected to contribute significantly to total greenhouse gases.

As air quality impacts are likely to be minimal and only associated with the construction phase, and equipment will be regularly maintained and serviced to minimize emissions, standards are not expected to be exceeded.

Water Quality: No rivers or water bodies are present in the vicinity of the ALC site, therefore potential impacts are very minor. It is noted that any potential impacts on water quality are temporary and only relevant to the construction phase.

ALC is located directly within the Free Economic Zone, where the main source of water supply is the central system running through the FEZ. This ensures a high standard of water quality, considering the absence of rivers and reservoirs in the vicinity. At the same time, given the temporary interruptions to water supply in the FEZ, a water storage tank is provided at the site. This approach not only ensures reliable operation of the center under any conditions, but also emphasizes the environmental sustainability of the project.

Waste storage and disposal: During construction, waste will be generated by construction workers (general garbage and packaging) and from the replacement of existing structures, which will require demolition of old structures. In most cases, much of the demolished material can be reused in the construction of other structures on the project or in the new structure itself. The remaining non-toxic material can be donated to the local community (if useful) or transported off-site and buried in an appropriate location (determined by the District Hukumat). The impacts of solid waste storage and disposal will be mitigated as follows:

- (i) Prior to construction, prepare and implement a Waste Management Plan (WMP) as part of the Contractor's EMP to cover all aspects of waste and accidental spillage management. The WMP plan shall be approved by PIU. The Contractor shall implement the provisions of the WMP.
- (ii) All solid waste will be collected, removed from work areas, and disposed of at local landfills as specified in the waste management plan.
- (iii) Burning of construction and household waste is prohibited.
- (iv) Separate waste collection shall be implemented.

- (v) Recyclable waste shall be disposed of and either reused in other construction or sold to recyclers.

Asbestos cement material (ACM) is not expected to have any anticipated impacts. In the event of such unanticipated impacts identified during project implementation, asbestos-containing materials will need to be handled in accordance with the globally accepted Guidelines for Good Practice in the Handling and Control of Asbestos.

6.5.2 Impact on environmental resources

During construction, the environment may be affected by noise, dust and vibration. Given that the works will be temporary, the presence of endangered or rare species is unlikely, and most species will be able to leave the source of disturbance, it is not expected to have a significant adverse impact on fauna.

However, the following actions will be taken to limit impacts:

- (i) Restrict the use of vibration-inducing equipment to the extent possible.
- (ii) Construction equipment will be maintained in good condition and will be equipped with suppressors.

6.5.3 Impact on socio-economic resources

Construction camp, construction work sites: Construction camp, construction sites and area for storage of materials and equipment to be used on a temporary basis will need to be identified. The presence of camps and work sites/complexes within the construction site could have adverse impacts in the form of increased disturbance, noise, and debris created by camps and work sites.

Temporary impacts can be mitigated by:

- (i) Locating the Camp, facilities and storage area/complex in an area agreed with the District Administration.
- (ii) (Provision of drinking water, clean water for showers, hygienic sanitary facilities/toilets with adequate supply of water, canteen/rest area for workers and first aid facilities on the premises.
- (iii) Separate toilets shall be provided for male and female workers.

Noise: Construction activities may result in increased noise levels at nearby residential buildings.

Mitigation measures are as follows:

- (i) Construction equipment and vehicles shall be maintained in good condition and equipped with the silencers.
- (ii) Ensure that construction times are coordinated with the local Hukumat.
- (iii) No construction work will take place between 19:00 and 07:00 daily.

Dust: Dust from construction equipment traffic can be a source of inconvenience to neighboring property owners with respect to stores and residential buildings. Potential dust generation during construction (due to machinery movement and excavation) can be reduced by:

- (i) Regular watering within each individual site formation area.
- (ii) The Contractor shall clean and water the site frequently to minimize fugitive dust emissions.
- (iii) Watering of exposed surfaces should be done as often as possible, depending on the circumstances.

Health and Safety: During the Construction Phase, a number of activities, equipment and products can have impacts on the health and safety of workers. Most of these impacts can be controlled and/or mitigated. Potential impacts are (i) air pollution from exhaust fumes and dust causing respiratory illness; (ii) contamination of local water sources by potential pollutants such as sediment, fuel, and lubricants; (iii) risk of workplace accidents; and (iv) spread of infectious diseases.

The proposed mitigation measures are as follows:

- (i) The Contractor shall prepare an Occupational Health and Safety Plan (OHSP) instructing workers on health and safety issues. The Contractor shall implement the provisions of the OSHP after approval by the Engineer (PIU) one month prior to commencement of work.
- (ii) (ii) The Contractor will provide environmental, safety and health training to all workers prior to the commencement of construction. The Contractor will instruct the workers on health and safety as required by good engineering practice and provide first aid equipment.
- (iii) (iii) Workers shall be provided (prior to commencement of work) with appropriate Personal Protective Equipment (PPE) suitable for construction work such as high visibility vests, safety boots, helmets, gloves, protective clothing, goggles and hearing protection, at no cost to the workers.
- (iv) Provision of potable water for the work camp.

6.6. Social impacts

This chapter presents an analysis of the potential positive and negative impacts on the socio-economic environment caused by Project activities. Based on the baseline data identified and presented above, it reflects the range of impacts related to social infrastructure, community health, local economic activity and others in the Project area of influence.

Following the impact assessment process initially involves the identification of Project activities and the potential social impacts arising from each activity during the Project phases. Project activities may include site preparation, construction, rehabilitation, operation and decommissioning. The socio-economic impact assessment utilizes a qualitative assessment approach that includes a structured questionnaire for data collection, as well as interviews, meetings and discussions with relevant stakeholders, to describe and assess potential impacts based on the magnitude of the event and receptor

sensitivity rating outlined in the tables below. Induced socio-economic impacts are indirect effects and will also be assessed using a similar approach.

Table 19. Impact amount

Amount	Criteria
Low	<p>Changes in social, economic or cultural dynamics with minor and temporary impacts on the productivity of any sector and/or the well-being of the population. These impacts are unlikely to raise concerns from public authorities or stakeholders and may include:</p> <p>Minor disruption to livelihoods or living conditions resulting in localized, reversible and temporary trouble;</p> <p>Temporary disruption to businesses resulting in no loss of income or damage to reputation;</p> <p>No change in the health of local communities;</p> <p>Temporary disruption to public infrastructure (e.g. road closures) that results in a minor inconvenience to affected communities.</p>
Medium	<p>Changes in social, economic or cultural dynamics with a moderate to noticeable adverse impact on the productivity of any sector and/or the well-being of the population. Such impacts may result in challenges from government agencies or stakeholders and may include:</p> <p>Negative change in livelihood status, household assets/income or living conditions;</p> <p>Temporary interruption of business operations resulting in a small drop in income;</p> <p>Increased risk to public health that can be controlled through detailed mitigation measures;</p> <p>Disruption to public infrastructure (e.g. road closure or sewer failure) resulting in inconvenience to other users.</p>
High	<p>Changes in social, economic or cultural dynamics that have a significant adverse impact on the performance of any sector and/or the well-being of the population. Such impacts may result in immediate intervention by public authorities and stakeholders and may include:</p> <p>Negative change in the status of livelihoods, household income/assets or living conditions affecting a high proportion of people, resulting in economic losses and protests against the project.</p> <p>Reputational damage and/or drop in business revenues, threatening the future viability of economic activity.</p> <p>Increased public health risk resulting in death or injury to a community member.</p> <p>Damage to public infrastructure (e.g., sewer, regional water supply, etc.) resulting in environmental or socioeconomic impacts to other users.</p>

Table 20. Ranking of receptor sensitivity

Sensitivity	Criteria
Low	<p>Sensitivity of a receptor is considered low when there is a moderate to high capacity and the means to adapt to this change and maintain/improve quality of life.</p> <p>Low sensitivity receptors may include:</p> <p>Individuals who are able to adapt quickly to temporary disruption to their living conditions, livelihood status or change in the status of public infrastructure (e.g. road closures).</p>

	Businesses with a robust economic model that can readily adapt to any constraints imposed on their operations or that can benefit economically from such changes.
Medium	Receptor sensitivity is considered medium sensitivity with limited ability and means to adapt to this change and maintain/improve quality of life. Medium sensitivity receptors may include: People that heavily rely on their livelihoods to maintain their socio-economic status and have a limited ability to adapt to change. Businesses that have a limited ability to adapt to change and are sensitive to any decline in economic returns or reputation.
High	High receptor sensitivity is considered for vulnerable receptors that have few opportunities and means to adapt to this change and maintain/improve their quality of life (e.g. homeless, internally displaced community in temporary housing, people with low access to treatment (e.g. lack of land ownership), people with no or low representation (e.g. migrants, seasonal pastoralists with no permanent assets in the area). High receptors sensitivity may include: Persons with extreme means of livelihood, low socio-economic income or poor quality of life. Persons who are vulnerable due to their age, disability or other reasons and who may require special assistance during engagement activities related to 3D seismic. Businesses with a marginally economic existence that cannot easily adapt to change.

6.6.1 Project Affected Persons

There are minor indirect impacts on the residents of nearby villages.

Within the project impact area any indigenous people are not present, because despite their ethnic origin, all citizens enjoy equal rights and opportunities under the Constitution of Tajikistan.

6.6.2 Consequences of land acquisition and resettlement

The Project's land acquisition requirements at the Preliminary Design and ESIA stages are estimated based on the area required for construction of the ALC. The exact temporary land allocation requirements will be determined during the pre-construction phase after detailed design has been completed.

6.6.3 Relocation of private/public infrastructure

Meanwhile, some public infrastructure such as electrical poles may need to be relocated during construction of the ALC. The final identification of the infrastructure to be relocated can only be determined once the location of the construction facilities has been recorded during the final design phase. This will be done by the construction contractor.

6.6.4 Local economy and job generation

Implementation will require a significant local workforce with a wide range of skills, the need for a variety of services and materials, and the demobilization of the workforce. This will involve certain risks associated with the potential for job creation in the Project's area of influence, as well as the potential employment of services and goods from local businesses, and the planned or unplanned termination of contracts with local workers.

According to national legislation, at least 70% of the Project's contract labor force must be local residents. Therefore, the Project provides an opportunity for local communities to participate professionally. In addition, the Project may involve the opportunity to improve the skills and professional development of workers through training, if applicable. Although international staff will occupy the majority of management positions, the Project will still generate a significant number of vacancies.

Therefore, the positive impacts are manifested in increased economic and human capital as well as the well-being of local residents, increased income of local entrepreneurs as a result of increased activity during Project implementation, and job losses of local workers associated with the Project.

Positive impacts may affect companies and small local businesses that will potentially generate income during Project implementation in relevant areas. This could generally have a stimulating effect on small business conditions and entrepreneurial opportunities in the areas covered by the Project activities. To enhance positive effects, local suppliers could be carefully considered and generally favored over country-level companies over district-level producers. Given that this improvement measure is foreseen, the likelihood of this impact should be considered moderate and the impact favorable.

In addition to positive impacts, there is some potential for negative impacts. The movement of equipment and/or materials related to the Project will affect the transportation facilities/road networks of the Khatlon, DRS and Sughd regions. This may adversely affect the economic activities of local companies or entrepreneurs whose practices depend on transportation, e.g. goods delivery, shipping, supply management, public transportation, etc. As the area is characterized by high density, disruption of such economic activities will also affect the end users of services.

Particular mitigation measures have to be adopted to prevent such disruption. The proposed measures will reduce the potential for this negative impact. Provided that the measures are in place, the severity of the impact should be **considered low**.

6.6.5. Labor inflow matters

During the construction phase of the Project, the Project will require the establishment of workers' camps. This will entail an influx of external labor into the Project footprint. There is the potential for conflict between different groups or individuals amongst contractor personnel. The division of labor between expatriates and locals could cause conflicts as well as potential cultural differences, which could lead to misunderstandings.

Similarly, a number of potential mitigation measures exist that can be taken to avoid or minimize impacts associated with the labor influx and potential conflicts among the workforce. For example, some of the mitigation measures could be training sessions on local culture for foreign labor/specialists. This can help not only to cope with the host communities but also to build effective communication within the labor community. In addition, a careful selection process of candidates has to be established according to several criteria: professional experience, education, psychological and physical health, right to work in Tajikistan and criminal record.

Taking into account the above, if mitigation measures are not implemented, the potential impact related to labor influx is assessed as moderate to high.

6.6.6. Security and public health

Potential impacts on the health, safety, and security of the Project's affected communities during the construction and operational phases of the Project and measures to avoid, mitigate, or minimize potential adverse impacts are provided in this section.

Table 21: Health, safety and security risks to the community associated with the project

Project aspect / component	Risk	Potential impact
Contractor personnel Presence of non-local labor in the Project area	Increased risk of communication between non-local labor force and local communities.	Increased transmission of communicable diseases between contractor personnel and local communities, as well as within the contractor's own workforce. Increased stress levels and associated mental health effects experienced by local communities due to the arrival of significant numbers of personnel from outside the areas of operation (Khatlon / DRS / Sughd) or the country. Possible conflicts and tensions due to cultural differences (e.g. gender relations or attitudes towards alcohol consumption) and different mentalities between local communities and the non-resident workforce, who may be unfamiliar with local conventions and customary modes of behavior.
Transportation Utilizing heavy trucks in the area of influence of the Project Increased traffic Intensive use of the local road network	Risk of increased air emissions associated with heavy vehicles Increased risk of road accidents throughout the Project Area of Influence Risk of increased noise and dust generation Risk of increased pressure on the local road network and public infrastructure	Impact on the physical and mental health of local communities through increased levels of respiratory disease Increased incidence of injuries among local communities related to motor vehicle crashes Increased potential for mental health problems and higher levels of stress among local communities
Security personnel Employing specially trained security forces to protect equipment and prevent intrusion	Risk of conflict between local communities and security guards. Risk of security personnel using disproportionate force against local residents in the event of tensions.	Potential violation of the right of local residents to access their land due to inappropriate use of force by security personnel Psychological discomfort and harm to local communities.

Project aspect / component	Risk	Potential impact
Waste disposal facilities Generation and utilization of solid and liquid waste, including bulky materials, sewage sludge and domestic wastewaters	Increased risk of soil and groundwater contamination	Increased rates of digestive diseases and decreased nutritional quality Decreasing water quality
Storage facilities Fuel and lubricants storage Household wastewater storage facility	Increased risk of soil and groundwater contamination	Increased rates of digestive diseases and decreased nutritional quality Decreasing water quality

Construction workers could be exposed to minor hazards ranging from waste to serious health problems. If mitigation measures and safety measures are followed during construction, significant impacts will not occur.

Construction safety measures shall include:

- Safety training for all employees;
- Supply of safety equipment such as helmets, boots, safety belts, etc.;
- Safety inspectors/auditors to monitor compliance;
- Regular testing and inspections of construction equipment;
- The contractor will be required to take measures to ensure complete safety of the public throughout the construction period;
- Open excavations must be closed or fenced off at night;
- The Contractor shall retain security personnel to ensure that the public is kept at a safe distance during all construction activities;
- Special safety precautions used when pulling conductors over roads;
- Safe transportation of personnel, materials and equipment;
- Deployment of sufficient night watchmen to ensure both the safety of the public and the safety of line equipment and materials; and
- All conductors must remain at a safe height during tie-downs throughout the night.

6.6.7. Infrastructure and community services

Potentially, the presence of Project-related labor affects community practices by increasing pressure on local infrastructure and services. This includes water resources, road and transportation infrastructure, electricity supply, health facilities, etc. Detailed assessment of the potential risk can be conducted at the ESIA preparation stage. However, potential mitigation measures are detailed below for further consideration in the process and reduce impacts and risks to community infrastructure and services.

6.6.8. Vulnerable groups

As previously mentioned in this document, no vulnerable groups have been identified in the

Project area. According to guidance from international organizations and the World Bank³, vulnerability is broadly viewed as a risk condition for any potentially harmful event and, as such, should be avoided. Vulnerability stems from the notion that certain groups in society are more vulnerable to shocks that threaten their livelihoods and/or survival than others. Other groups are so vulnerable that they live in a chronic state of impoverishment in which their livelihoods are constantly threatened.

6.6.9. Cultural heritage

The Project area does not have numerous cultural and historical sites that are considered nationally significant. Accordingly, the Project will not have a hazardous impact on these cultural heritage sites due to their distance from the ALC.

Provide fencing and protection from Project-related activities and other sources of potential harm in the event of chance finds, and inform the State Historical and Cultural Expertise contact person. Ongoing contact and consultation with local and national authorities (e.g. Ministry of Culture and its regional offices, competent authorities for the protection and use of cultural and historical heritage sites), local and national historical and archaeological institutes (e.g. institutes of the Academy of Sciences) should be undertaken to prevent possible disruption of cultural links, destruction of prominent archaeological sites and sites of high historical significance to local communities and authorities, and to ensure that local and national historical and archaeological institutions (e.g. institutions of the Academy of Sciences) are not disrupted.

Maps of tangible cultural heritage provided by the Institute of History, Archaeology and Ethnography of the Academy of Sciences of the Republic of Tajikistan should be used by seismic planners to avoid accidental encounters of sites that have a high level of cultural significance for local communities and the general population of the country. Other mitigation measures are suggested in the chapters below.

6.7. Measures proposed to mitigate social risks

6.7.1. Impact on local economy and job generation

In order to enhance this positive impact, certain measures should be developed, such as:

- Exploiting local recruitment agencies and/or local public employment centers for a more informed selection of candidates;
- Providing various trainings and courses for the local labor force;
- Diversifying employment channels by utilizing the network of available local recruitment agencies;
- Favoring local (district level) candidates;

³ Risk and Vulnerability Factors in Poverty Analysis: Recent Advances and Future Directions, Discussion Paper SP No. 0610, available at <http://documents.worldbank.org/curated/en/414361468142164415/pdf/377190Risk0vul1ity0SP0061001PUBLIC1.pdf>

- Fostering contacts with local educational institutions in case of need for trained candidates should be maintained;
- Favoring recruitment of vulnerable or disadvantaged groups should be given;
- Development and use of a mechanism to motivate contractors to recruit semi-, low- and unskilled labor locally in the Project Area (from nearby communities). For example, keep records of the origin of workers employed to ensure that local residents are given preference for employment. The Contractor shall provide a list of all workers with their place of permanent residence.

6.7.2. Labor inflow

The following measures shall be incorporated into the Project to avoid or mitigate adverse impacts of Project hazards:

- Special training and courses should be organized for the Project workforce and contractor(s) to prevent harm to local communities;
- Courses on local norms and traditions should be organized for the contractor(s) personnel.

6.7.3. Security and public health

Mitigation measures for impacts to public health and safety would be as follows:

- Health monitoring and disease prevention among the workforce;
- Health checks of all personnel engaged in Project activities, conducted after the start of their work assignment and regular medical check-ups during the pre-arrival shift organization, including contractor personnel;
- Regular medical check-ups of personnel;
- Tuberculosis control in the workplace and in the workers' accommodation;
- Regular interaction with state health and social protection authorities in Khatlon and DRS and Sughd provinces on TB, AIDS and epidemic prevention;
- Trainings should be conducted to raise awareness about TB, HIV and malaria, indicating what type of behavior should be avoided;
- Antidotes for snake and spider venom will be purchased and presented.
- Medical and social facilities on site for the labor force
- Workforce Behavioral Regulations.

Various materials and tools have to be used to raise awareness of health and safety issues among Project personnel (e.g. posters, leaflets).

Designate a field team member responsible for health and safety in the operational area;

Ensure that all contracting companies comply with all applicable laws, regulations and permit conditions, while applying sound operating practices and procedures in carrying out their work in a safe manner;

Ensure that professional standards (including a health, safety and environmental management system) are implemented:

- Availability of transportation for potential patients of local hospitals

- Inform local hospital representatives and health care professionals about the possibility of local medical facilities being utilized by Contractor(s) employees during Project implementation, if/when necessary
- Safety equipment on Project vehicles, such as seat belts, speed control systems (e.g., speed governors), lights, markings (if hazardous materials are being transported), spill response equipment, and first aid kits;
- Regular inspection of vehicles and road conditions, and prompt maintenance and repairs as needed;
- Transportation of hazardous substances and wastes should be mainly scheduled during daytime hours for safety reasons, where possible
- Following a traffic accident, accident or collision, the contractor's representative should immediately contact the local police service, medical service (if necessary) and notify the PIU of the incident.
- Drivers must undergo regular medical checks to prevent unfit personnel from driving the vehicle at any time.

6.7.4. Infrastructure and community services

The following measures are required to minimize impacts to community infrastructure and services:

- Transitioning heavy trucks during low traffic hours;
- Hiring licensed drivers with sufficient experience in handling heavy-duty vehicles to prevent potential traffic conflicts, accidents, and increased congestion;
- Provide for the rehabilitation of transportation infrastructure (e.g., highways or local roads) if the transportation infrastructure (e.g., highways or local roads) is damaged as a result of Project-related activities, the infrastructure shall be repaired by the hydraulic fracturing contractor(s);
- Maintain a safe distance in the vicinity of various infrastructure such as pipelines, telephone lines, sewers, and water wells;
- Cultural sites have to be considered before any activity related to the Project; it is recommended to apply a safe distance to these sites. In addition, road links associated with such infrastructure should be considered with special care and attention to prevent possible restriction of access to tourist facilities. Any close proximity (less than 1 km) to mosques and known cultural heritage sites will be avoided.

6.7.5. Cultural heritage

Various mitigation measures must be considered to prevent adverse impacts on culturally significant sites in Sughd province:

- Introduce an instruction on accidental finds of archaeological and historical significance prepared in accordance with the recommendations of the Institute of History, Archaeology and Ethnography of the Academy of Sciences of the Republic of Tajikistan, or use the Institute's current manual if available;
- Provide fencing and protection from Project-related activities and other sources of possible harm in the event of chance finds, and inform the contact person of the State Historical and Cultural Expertise;

- Regular contact and consultation with local and national authorities (e.g. Ministry of Culture and its regional offices, competent authorities for the protection and use of cultural and historical heritage sites), local and national historical and archaeological institutes (e.g. Academy of Sciences institutes) should be conducted to prevent possible disruption of cultural links, destruction of significant archaeological sites and sites of historical importance to local communities and authorities; and to ensure that local and national historical and archaeological institutions (e.g. Academy of Sciences institutes) are not affected by the Project.
- Maps of tangible cultural heritage provided by the Institute of History, Archaeology and Ethnography of the Academy of Sciences of the Republic of Tajikistan shall be used to avoid accidental encounters of sites that have a high level of cultural significance for local communities and the general population of the country;
- Ensuring that the contractor's activities comply with the WB Cultural Heritage Policy, the Law of the Republic of Tajikistan on the Protection and Use of Historical and Cultural Heritage Sites and the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage;
- Considering the previous mitigation recommendation, special attention should be paid to mosques, cemeteries and other sites with prescribed sacred significance.

7. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

An integral part of the impact assessment and best practice process is the development of an environmental management system and environmental management plan/s to ensure that all recommendations from the formal project impact assessment phase are carried forward to the implementation phase.

The site specific environmental management plan will be fully developed by the selected main contractor. The plan is approved by the PIU. The PIU will ensure that the Contractor's Environmental Management Plans (EMPs) and any topic-specific EMPs are fit for purpose and accurately reflect the results of the impact assessment process as set out in the given document.

As previously noted, the Contract will require the development of method descriptions for key project development activities. These will include a risk assessment of potential health, safety and environmental impacts. The results of these risk assessments should be included in the EMP and thematic EMP, as appropriate.

No work on site should begin until the project's EMPs have been approved. The PIU must also ensure that the contractor and any assigned construction managers have the capacity, knowledge and experience to fully implement the necessary mitigation and monitoring requirements during the project implementation phase. This will include the ability to effectively monitor the implementation of management plans throughout the contract.

As a basis for the Contractor's development of the required EMP, the following sections provide an overview of the approved mitigation measures developed as part of the ongoing impact assessment process. They should be considered as a preliminary list, which the contractor must fully develop into a work plan.

The Environmental Management and Monitoring Plan matrix in Table 22 below presents all necessary measures, as well as monitoring activities and responsibilities corresponding to the assessed impacts, that are considered necessary in the environmental assessment process. The required mitigation measures cover all phases of the contract and are divided into pre-construction, construction and operation phases. This EMP is based on the type, extent and duration of environmental impacts identified during the design phase. If unforeseen impacts arise during implementation, the EMP will be amended to account for the unforeseen impacts and mitigation measures will be modified as necessary.

Mitigation and monitoring measures are intended to assist PIU and contractors in managing potential adverse environmental impacts. When the final detailed engineering design of the project is available, the subproject EMP will be updated and will also include detailed site maps to support the PIU and contractors in preparing the Contractor's EMP Package (ECMP) and environmental monitoring and assessment.

Table 22: Environmental Management and Monitoring Plan

Impacts	Mitigation Measures	Monitoring		Responsible party	
		Item	Frequency	Implementation	Monitoring
I. PRE-CONSTRUCTION PHASE					
Impact on land acquisition and public assets	Access roads will be designed to the minimum required width within the right-of-way if possible.	PIU/Design Consultant (DC) – Any access road to be rehabilitated must be properly designed and maintained by both the PIU and the consultant	Once	Consultant for design	PIU
Impact from natural disasters	Incorporating seismic design provisions in building codes is essential. These codes provide guidelines for designing structures that can withstand the forces generated by earthquakes. Buildings should be designed to resist seismic forces through various techniques such as using reinforced concrete or steel frames, shear walls, and moment-resisting frames. These structural elements help distribute and absorb the energy generated during an earthquake.	PIU/Design Consultant (DC) – Any access road to be rehabilitated must be properly designed and maintained by both the PIU and the consultant	Once	Consultant for design	PIU
Impact on planted ornamental trees	Tree cutting will be carried out in accordance with the approved design and only after the approval of the local government. Tree cutting and damage to local vegetation will be prevented as much as possible; minimized.	PIU/Consultant will ensure replacement of all felled trees with the approval of the local government authority.	Once	Consultant for design	PIU
Preparation of a site-specific environmental management plan	The appointed contractor will, within one month of awarding the contract, prepare the required Contractor's Site-Specific Environmental Management Plan (SSEMP) based, inter alia, on the ESIA, the construction methodology it will use, the work schedule and site conditions of its selected area.	The PIU will review and approve the Contractor's SSEMP.	Once	Consultant for design	PIU
II. CONSTRUCTION PHASE					
Air pollution	Prior to the commencement of any construction work, the Contractor will obtain site air quality measurements which will serve as a baseline air quality level. Ban on open burning of solid waste (plastic, paper, organic substances).	Periodic monitoring and reporting by the PIU. Complaints received from the population will be transferred to the PIU and documented.	Daily	Contractor	Construction Supervision consultant / PIU

	<p>The Contractor will be required to cover the materials with tarpaulins or other suitable materials during transport to avoid spillage of the materials.</p> <p>Earthen roads, especially roads near residential buildings and in the city, will be wetted in dry and dusty weather.</p> <p>A speed limit will be introduced for construction equipment.</p> <p>The Contractor will regularly spray water on exposed soil during construction.</p> <p>Construction equipment and vehicles will be regularly serviced to control air emissions during vehicle operation.</p> <p>The Contractor will be required to water the surrounding open soil regularly.</p> <p>The Contractor will be required to cover temporary stocks of soil, materials with tarpaulin or other suitable materials during transportation to avoid spillage of materials.</p> <p>Provide construction workers with masks and personal protective equipment (PPE) to minimize inhalation of inhalants (suspended solids).</p> <p>Use of liquefied petroleum gas or kerosene as fuel in construction camps instead of firewood. Tree cutting for firewood will be limited.</p> <p>Installation of exhaust chimneys of appropriate height for diesel generator sets.</p> <p>Use of low sulfur diesel fuel for generator sets as well as other machinery.</p> <p>Conducting periodic monitoring of air quality during the construction phase, as well as upon receipt of complaints about air quality violations. If the monitored parameters exceed the specified limit, appropriate control measures will be applied.</p>				
Noise and vibration	<p>Prior to the commencement of any construction work, the Contractor will receive measurements of noise levels at the site, which will serve as baseline parameters.</p> <p>The ambient noise level in the workplace should not exceed 45 dBA and should be controlled by the Contractor.</p> <p>Temporary construction sites such as labor camps, vehicle and earth-moving equipment maintenance workshops will be located as far as possible from populated areas and other sensitive site.</p>	<p>The EMP will be included in the tender documents and contract.</p> <p>Complaints received from the population will be transferred to the PIU and documented.</p>	Daily	Contractor	Construction Supervision consultant / PIU

	<p>Silencers will be installed on construction equipment and machinery and will be properly maintained.</p> <p>Equipment and machinery with a lower noise level will be selected for the competition.</p> <p>During periods of work with high noise levels, workers will be provided with protective devices such as earplugs/or headphones.</p> <p>Noise levels will be measured regularly to ensure the effectiveness of noise abatement measures.</p> <p>Construction works, in particular the operation of noise equipment, will be limited to daytime hours from 07:00 to 19:00 only to avoid disturbing nearby settlements at night. Only in extreme cases will it be possible to work beyond these hours.</p> <p>Noise barriers, such as earthen berms or walls made of wood or metal, that form a solid barrier between the construction site and adjacent buildings will be used.</p> <p>Proper information and notification to the relevant local government authority will be carried out to avoid disturbance and inconvenience to local residents and other nearby areas.</p> <p>Stationary equipment that produces high noise levels, such as diesel generators, will be located as far as possible from sensitive equipment.</p> <p>Temporary barriers made of sound-absorbing materials will be installed around the construction sites, especially near residential buildings.</p> <p>Noise reduction devices will be installed in noise-generating rooms.</p> <p>Drivers will be required to minimize horn blowing and comply with speed limits.</p> <p>Academic community and communities in the impact area of the subproject will be provided with information about construction work and construction schedule through billboards.</p> <p>Noise barriers and noise-absorbing facades will be erected around the buildings under construction.</p> <p>Construction activities, in particular the operation of noise equipment, will be limited to daytime.</p> <p>Noise reduction devices will be installed in noise-generating rooms.</p> <p>Drivers will be required to minimize blowing from the horn and comply with speed limits.</p>				
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<p>Water pollution</p>	<p>Do not store fuel on the site</p> <p>Ensure that the safe storage of fuels and other hazardous substances complies with national and local regulations to prevent contamination and water pollution.</p> <p>Ensure that all storage containers are in good condition and properly labeled.</p> <p>Used oil and other residual toxic and hazardous materials will be disposed of at an authorized facility.</p> <p>Ensure that spill cleanup materials (e.g., absorbent pads, etc.) specifically designed for the storage of petroleum products and other hazardous substances are available where such materials are stored; Leaks, if any, will be repaired immediately with extreme care to leave no traces. Spilled waste will be disposed of at approved landfills.</p> <p>Sewage from workers' settlements, but not contaminated with hazardous substances, must be discharged into the city sewer system.</p> <p>Accumulated wastewater in any portable toilets should be transported to the municipal wastewater treatment plant.</p> <p>Water contaminated with silt should be stored in containers to allow the silt to settle and delivered to municipal wastewater treatment plants.</p> <p>Any chemicals or hazardous materials to be used in construction should be handled carefully to avoid spillage and stored in a covered shed with an impervious slab and inside a containment shell with 110% liquid storage capacity as precautions in case of sudden explosion.</p>	<p>Periodic monitoring and reporting by the PIU.</p> <p>Any complaint received from local residents or the community will be referred to the PIU and documented.</p>	<p>Daily</p>	<p>Contractor</p>	<p>Construction Supervision consultant / PIU</p>
<p>Use of hazardous materials</p>	<p>Ensure safe storage of fuel and other hazardous substances. Hydrocarbons, toxic materials and explosives (if necessary) will be stored in appropriately protected areas in accordance with national and local regulations to prevent contamination and water pollution.</p> <p>Equipment/vehicle repair/maintenance and refueling areas will be limited to areas of construction sites designated for the collection of spilled lubricants and fuel. Such areas will need to be equipped with a specific perimeter and drainage system leading to an oil/grease and water separator which will regularly skim the oil to prevent spilled oil/grease from draining onto the ground surface.</p>	<p>Periodic monitoring and reporting by the PIU.</p> <p>Any complaint received from local residents or the community will be referred to the PIU and documented.</p>	<p>Daily</p>	<p>Contractor</p>	<p>Construction Supervision consultant / PIU</p>

	<p>Management and storage of fuel, used oil and hazardous substances will be planned in accordance with the EHS General Guidelines for the Management of Hazardous Materials. This includes the use of appropriate secondary containment structures capable of holding 110% of the largest tank or 25% of the total tank volume in areas with above ground tanks with a total storage volume equal to or greater than 1000 litres. Fuel storage tanks must be placed under the roof and on a concrete slab from a berm or dam to contain spills in a protected location;</p> <p>Separate hazardous waste (oily waste, used batteries, fuel drums) and ensure that storage, transportation and disposal are non-polluting and in accordance with national and local regulations;</p> <p>Ensure that all storage containers are in good condition and properly labeled;</p> <p>Check containers regularly for leaks and make necessary repairs or replacements;</p> <p>Store hazardous materials above flood level;</p> <p>Discharge of oil-contaminated water will be prohibited;</p> <p>Waste oil and other residual toxic and hazardous materials will not be spilled onto the ground;</p> <p>Used oil and other residual toxic and hazardous materials will be disposed of at an authorized facility.</p> <p>Adequate precautions will be taken to prevent oil/lubricants/hydrocarbons from polluting the river. channels;</p> <p>Spill response equipment (e.g., absorbent pads, etc.) specifically designed for petroleum products and other hazardous substances will be stored on site. In the event of an accidental spill, immediate cleanup will occur and all cleanup materials will be stored in a safe location for future disposal. Disposal of such waste will be carried out by a waste management company hired by the Contractor. The waste management company must have the necessary licenses to transport and dispose of any hazardous waste before such waste is removed from the site. Contractors will keep copies of company licenses and provide waste disposal declarations at their camp site for routine inspection by an engineer;</p> <p>Leakage, if any, will be repaired immediately with utmost care so as not to leave any trace;</p>				
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	<p>Leaked waste will be disposed of at approved locations;</p> <p>All premises intended for the storage of hazardous materials will be quarantined and provided with adequate means to deal with emergency situations in compliance with all applicable legal provisions;</p> <p>The Contractor will be required to provide Material Safety Data Sheets (MSDS) in all work areas and train workers in the safe use of these materials, including the provision of safety equipment for handling them.</p> <p>The Contractor will appoint an ESO to be responsible for hazardous substance storage areas. materials. Entry will be allowed only with authorization.</p>				
<p>Waste generation (domestic/construction solid hazardous/non-hazardous waste, wastewater)</p>	<p>For municipal solid waste:</p> <p>The Contractor shall have a plan to prevent and minimize the generation of solid waste, which will be communicated to his work team.</p> <p>Waste should be separated to facilitate recycling and maintain high economic value for recyclers.</p> <p>The Contractor shall provide sufficient number of containers for the generated solid waste.</p> <p>Ordinary solid waste generated should be booked for collection by existing collectors on site for disposal.</p> <p>Construction waste can be recycled and handed over to recyclers.</p> <p>For hazardous waste:</p> <p>Materials should be handled with care to ensure avoid of spills or releases to the environment</p> <p>The storage order must correspond to the material data of the sheet.</p> <p>Unused leftovers must be brought to approved facilities in the city for proper disposal</p> <p>In the case of waste asbestos cement materials (ACM), asbestos-containing materials must be managed in accordance with the Good Practice Guide for Asbestos Management and Control.</p> <p>Wastewater:</p> <p>Wastewater in any workers' camps must be connected to the sewerage system, if there is one at the sites.</p>	<p>Periodic monitoring and reporting by the Consultant and the PIU.</p> <p>Any complaint received from local residents or the community will be referred to the PIU and documented in social monitoring reports.</p>	Weekly	Contractor	Construction Supervision consultant / PIU

	<p>If there is no sewerage system, accumulated sewage and wastewater in mobile toilets used by workers must be transported by sewerage trucks to the city sewage treatment plant.</p> <p>Water contaminated with silt should be stored in containers to allow the silt to settle and delivered to municipal wastewater treatment plants.</p>				
Generation of dredged material and sludge runoff	<p>Develop and implement a Waste Management Plan</p> <p>Excavated materials should be used for backfill when necessary and excess material should be removed and disposed of at sites approved by local authorities.</p> <p>Excess excavated material/soil cut from construction will be used as fill material for low-lying areas identified by local authorities.</p> <p>The Contractor may provide the excavated materials to any property owner who would be interested in using them as backfill on their land. The city landfill can use these surplus materials such as soil cover.</p> <p>Under no circumstances will the contractor be allowed to throw them onto any surface of water.</p> <p>Do not store waste on site.</p>	<p>Periodic monitoring and reporting by the Consultant and the PIU.</p> <p>Complaints received from local residents or the community will be referred to the PIU and recorded in social monitoring reports.</p>	Weekly	Contractor	Construction Supervision consultant / PIU
Vegetation loss	<p>Tree cutting will be carried out according to the approved project/design and only after approval from the relevant authorities. Tree cutting will be prevented as much as possible and damage to native vegetation will be kept to a minimum.</p> <p>Where possible, trees will be balled, replanted and maintained until they survive. Trees to be cut down will be replaced with a minimum of two (2) seedlings.</p> <p>Landscaping and planting of trees/vegetation will be carried out at the construction sites.</p>	<p>Periodic monitoring and reporting by the Consultant and the PIU.</p> <p>Complaints received from the population will be transferred to the PIU and recorded in social monitoring reports.</p>	Weekly	Contractor	Construction Supervision consultant / PIU
Temporary destruction of public roads, paths/trails and property access	<p>Residential dirt paths/access to affected properties and driveways will be maintained and temporarily covered with durable materials for safety purposes (e.g. paving stones). Particular attention will be paid to ensuring safety on roads and trails used by pedestrians.</p> <p>Long-term parking of construction equipment on side streets will not be tolerated.</p> <p>The Contractor will be obliged to immediately restore the excavated areas. and any damaged road and trail sections.</p>	<p>Periodic monitoring and reporting by the consultant and PIU.</p> <p>Report any complaints received from the community to the PIU and document them in social monitoring reports.</p>	Monthly	Contractor	Construction Supervision consultant / PIU

Traffic Violation	<p>The Contractor will prepare and submit to the PIU a traffic management plan (as part of the EMP) detailing the detours and management measures that will be taken during the work. Signs and other appropriate safety equipment will be used to indicate construction activities.</p> <p>A clause in the contract stating that during construction, precautions must be taken to ensure that disruption to access and traffic is kept to a minimum and that access to campus buildings and facilities is maintained at all.</p> <p>Providing adequate protection for the public near the work site, including advance notice of work, installation of safety barriers if required by educational institutions and the community, and signage or marking of the work area.</p>	<p>Periodic monitoring and reporting by the Consultant and the PIU.</p> <p>Report any complaints received from the community to the PIU and document them in social monitoring reports.</p>	Daily	Contractor	Construction Supervision consultant / PIU
Impact on living conditions in a construction camp	<p>A work camp management plan will be prepared taking into account accommodation: processes and standards^{4 3} as part of the EMP and implemented.</p> <p>Workers will be provided with adequate housing, sanitation and recreational conditions.</p> <p>The Contractor will provide acceptable camp facilities with potable water, sanitation and cleaning supplies, a kitchen and associated cooking utensils, nutritious food rations and recreational facilities to either meet the requirements of the relevant labor regulations of the Republic of Tajikistan or an acceptable international standard, as appropriate.</p>	<p>Periodic monitoring and reporting by the Consultant and the PIU.</p> <p>Complaints received from local residents or the community will be referred to the PIU and recorded in social monitoring reports.</p>	Daily	Contractor	Construction Supervision consultant / PIU
Heating water in the camp and using firewood for cooking	<p>Providing gas and kerosene for heating water and cooking. Locate camp away from significant forested areas and prohibit the collection and use of fuel.</p> <p>The Contractor will impose sanctions on all workers collecting timber or non-timber resources.</p>	<p>Periodic monitoring and reporting by the Consultant and the PIU.</p> <p>Complaints received from local residents or the community will be referred to the PIU and recorded in social monitoring reports.</p>	Daily	Contractor	Construction Supervision consultant / PIU

^{4 3} Source: IFC and EBRD Handbook, Worker Placement: Processes and Standards (August 2009).

Social conflict between workers and society	<p>Workers from local communities will be offered priority employment as unskilled labor.</p> <p>Workers will also be required to undergo regular screenings to minimize the risk of contracting and spreading HIV and other related diseases.</p> <p>If ever, the camps will be located at a considerable distance from nearby population centers to avoid social conflicts. Because the area is highly urbanized and has good ground transportation, most workers probably just commute to work daily.</p> <p>Workers will be provided with cultural awareness training if they come from outside the region.</p>	<p>Periodic monitoring and reporting by the Consultant and the PIU.</p> <p>Complaints received from local residents or the community will be referred to the PIU and recorded in social monitoring reports.</p>	Daily	Contractor	Construction Supervision consultant / PIU
Impact on physical cultural resources (PCR)	<p>Prepare "chance find" procedures within the framework of the EMP and implement them in the chance find/discovery;</p> <p>The Contractor will instruct personnel that in the event of an accidental discovery of relics, they will immediately stop any work on the territory and immediately report the discovery to their supervisors;</p> <p>Accidental discoveries must be notified to the PIU for proper approval by the government agency. Excavation workers should be informed of the low risk of the presence of underground artifacts and instructed in the procedures to follow if any artifacts/remains are discovered.</p>	<p>Periodic monitoring and reporting by the Consultant and the PIU.</p> <p>Complaints received from local residents or the community will be referred to the PIU and recorded in social monitoring reports.</p>	Monthly	Contractor	Construction Supervision consultant / PIU
Risk to public health and safety	<p>Trucks and other vehicles are maintained in safe operating condition. All drivers and equipment operators act responsibly;</p> <p>All loads must be secured and all loads containing volatile materials (such as excavated soil and sand) must be covered with a protective cover;</p> <p>Any excavation on site will be properly secured to avoid impact on adjacent buildings and also to prevent collapse due to soil instability;</p> <p>Construction safety nets must be securely installed to catch any falling materials or debris</p> <p>The Contractor must resolve problems in accordance with the GRM.</p> <p>A complaint box will be created for the academic community.</p> <p>The contractor will install construction networks around the building under construction.</p> <p>Contractor's Traffic Management System Plan.</p>	<p>Periodic monitoring and reporting by the consultant and PIU.</p> <p>Any complaint received from local residents or the community will be referred to the PIU and documented in social monitoring reports.</p>	Daily	Contractor	Construction Supervision consultant / PIU

	<p>Designations and corresponding speed limits</p> <p>Require suppliers to ensure that delivery vehicles carrying construction materials are maintained in safe operating condition, that loads are secured, and that all shipments containing volatile materials (such as excavated soil and sand) are covered with a tarp.</p> <p>All drivers and equipment operators act responsibly.</p>				
Occupational Health and Safety Risk	<p>Before commencing work, the contractor will be required to prepare a brief technical specification, which will indicate the hazards arising in a particular case.</p> <p>A brief description of the approved work order and details of the protective equipment to be used by any person entering the specified work area, as well as the emergency response procedure within the framework of the EMP to deal with serious accidents and the designation of a person who can be immediately contacted at in case of an accident, should also be included in the EMP.</p> <p>A copy of the EMP and the name of the person who can be contacted in the event of an emergency must be posted on site so that it is visible to all employees. Before starting work, the contractor must discuss the requirements of the Emergency Response Procedure with the workers.</p> <p>Prepare a site safety plan and appoint a safety inspector to monitor safety measures during construction. These safety measures include the use of personal protective equipment and clothing, warning signs, and excavation shelters and fencing. Arrangements will also be made to provide immediate medical assistance in case of accidents;</p> <p>Install warning signs and barriers around the site;</p> <p>No drugs or alcohol allowed on site;</p> <p>Noise and dust to be controlled;</p> <p>All workers are provided with protective equipment appropriate to the task they perform;</p> <p>Provide potable water, portable toilet with hand washing facility at the construction site. The work camp will be equipped with a locker room with storage space for clothes, washbasins and showers;</p> <p>Work assignments prepared for each type of activity;</p>	<p>Periodic monitoring and reporting by the consultant and PIU.</p> <p>Report any complaint received from the local community to the PIU and document it in social monitoring reports.</p>	Daily	Contractor	Construction Supervision consultant / PIU

	<p>Before entering the site for the first time, workers must be familiarized with the site and explained the hazards on the site, as well as the safety procedures for the workplace; and</p> <p>Medical services and first aid supplies provided in conjunction with a person qualified in first aid.</p> <p>The Contractor will be required to implement a construction health and safety plan in accordance with the EHS Guidelines⁵ as a minimum standard. The Contractor will appoint a full-time and qualified Environmental Safety Officer (ESO), a full-time and qualified Health and Safety Officer (HSO), and full-time medical personnel to ensure implementation of the plan. The plan will include the following:</p> <p>Providing first aid supplies readily available to workers;</p> <p>Provision of personal protective equipment such as helmets, gloves, rubber boots, etc.;</p> <p>Mandatory wearing of personal protective equipment when working on site and installation of safety signs/reminders at strategic construction sites;</p> <p>Installation of sufficient lighting at night;</p> <p>Ensure proper licensing and training of vehicle and equipment operators;</p> <p>Training of employees on the prevention of infectious diseases and HIV/AIDS.</p>				
Complaints from local residents and workers	<p>Provide adequate safety and other work-related signs. Include on billboards the names and contact information of persons authorized to handle complaints.</p> <p>Maintain good relationships with the local community</p> <p>Provide sufficient notice on billboards, social media or print media. Provide multiple complaint boxes for complainants to submit their complaints.</p> <p>Resolve issues in a timely manner to prevent matters from reaching a dead end.</p> <p>Delegate personnel who will deal with complaints</p> <p>Interaction with GRM members on any issues raised.</p>	<p>Periodic monitoring and reporting by the consultant and PIU.</p> <p>Report any complaint received from the local community to the PIU and document it in social monitoring reports.</p>	Daily	Contractor	Construction Supervision consultant / PIU

⁵ Environment, Health and Safety Guide (ifc.org)

	Keep a good record of questions and concerns raised.				
Construction sites and Contractor's facilities after completion of construction work	<p>Every effort will be made to ensure that all waste, equipment and any contaminated soil are removed from the site and properly disposed of at approved disposal sites.</p> <p>All construction sites and work areas must be repaired and restored so that they can be returned as close to their previous condition as possible.</p> <p>Stabilization and landscaping of all construction sites to restore drainage should be undertaken as soon as possible as work is completed.</p> <p>Any contaminated soil must be removed from fuel and oil storage areas and from the site.</p> <p>After completion of the work, there should be no waste left that is not natural and safe.</p> <p>If the waste is not removed, the PIU has the right to withhold payment and arrange for cleaning and deduct that expenses for cleaning from the final payment amount less of an additional 10% for completing this task.</p>	<p>Periodic monitoring and reporting by the consultant and PIU.</p> <p>Report any complaint received from the local community to the PIU and document it in social monitoring reports.</p>	Once after completion of construction works	Contractor	Construction Supervision consultant / PIU
III. OPERATION PHASE					
Impact on the health and safety of the local community	<p>For solid waste:</p> <p>Management of solid waste should be carried out in a manner that avoids its generation, minimizes its quantity and, where possible, reuses it or recycles and disposes of it in an appropriate manner.</p> <p>Separate containers must be provided for proper separation of waste.</p> <p>The issuance procedure must be agreed upon and correspond to the territory of the ALC.</p> <p>For wastewater: If possible, connect to the city sewer system into which all wastewater and wash water is discharged. In cases where connection to the city sewer system is not possible, alternative wastewater management methods should be explored.</p> <p>For noise: Every occupant of that building must be advised to minimize noise and abide by community rules.</p> <p>To ensure safety: watchmen/security officers to be hired to secure facilities around the clock. This will minimize security risks to the community.</p>	Periodic monitoring and reporting by the operator	Monthly	ALC	MoA

8. CONTRACTOR'S ENVIRONMENTAL MANAGEMENT PLAN (ESMP)

Prior to commencement of construction work, each Contractor will be required to submit to the PIU a detailed Environmental and Social Implementation Plan based on actual construction methodologies, work program, guidelines, construction management and workforce management during construction. The EMP Implementation Plan must demonstrate compliance with local environmental requirements, the provisions of the EMP in the ESIA that will be completed, and ensure implementation of the mitigation measures outlined in the General Specifications for Contractors and World Bank Safeguards, as well as relevant applicable policies and standards. The contents of the Contractor's Environmental Management Plan shall detail how site-specific sub-plans will be prepared, which will be supplemented by the Contractor's work practices, procedures and implementation programme. The plan must be approved by the PIU in accordance with the project and ESIA requirements.

The EMP must contain such details as environmental protection obligations on the part of the Contractor's employees; specific methods for implementing environmental and social measures of the project; detailed designs and installation of pollution control and prevention facilities (e.g. drainage channels, settling basins, noise and dust abatement, access control, etc.); environmental control mechanisms; detailed management plans and site operation plans describing proposed measures to minimize, mitigate and manage impacts during the construction period; environmental monitoring program at various stages of the construction period.

8.1. Construction Contractor Management

It is recognized that the Contractor will be a key component of environmental and social management, pollution control and impact mitigation during construction. A number of measures will be taken to ensure that the Contractor is fully aware of its responsibilities and obligations in relation to the EMP. These measures should include:

- Contractors will be required to communicate and consult with project-affected communities in the vicinity of the construction site. A notice board shall be

installed adjacent to the converter station site and in the immediate vicinity of the Project right-of-way where construction activities will take place to inform the public of major construction activities and their duration. The board should also include contact names and telephone numbers through which the public can express their concerns and any complaints regarding the construction work;

- All contractors and their personnel must complete a mandatory environmental/social training program prior to commencement of construction on site (as part of the mandatory site induction). The content of the environmental training program should include:
 - National and local environmental norms and standards;
 - Technical guidance on environmental/social protection and management;
 - EMP, ESIA and other documentation related to the project;
 - Methods and requirements for environmental monitoring, as well as reporting and communication procedures;
 - Mitigation;
 - Rules for the assessment and protection of cultural heritage;
 - Emergency response measures;
 - Code of contact persons and prohibitions on working in the project;
 - Long-term public consultation and response; and
 - Contractor's environmental and social protection and management responsibilities. Training and compliance with EMPs should be viewed as an ongoing process and procedures will be developed to ensure compliance with these measures at the beginning and end of each workday, including posters, notices, refresher training and toolkit conversations.

8.2. Compliance with legal and contractual requirements

The Contractor and all subcontractors must comply at all times not only with the environmental and social specifications and provisions of the EMP, but also with each country's environmental and pollution control laws and regulations. Any failure to comply with these requirements will result in the PIU imposing a financial penalty. For minor violations - incidents that cause temporary but reversible damage - the Contractor(s) will be given a reasonable period of time to correct the problem and restore the environment.

In case of non-compliance with the requirements, the following procedure should be followed:

- If the Environmental specialist (PUI) concludes that the current status of the license/permit application and any preparatory environmental and pollution control work may be inconsistent with the proposed construction work or may result in a potential violation of the environmental and social environmental and pollution control requirements of the ESMP pollution, they must notify the Contractor's Environmental staff accordingly;
- The PIU sends a notice of non-compliance to the Contractor indicating the nature and extent of the violation;
- The Contractor must take action to correct the non-conformity within 24 hours of receipt of the notice or within such period as may be specified in the notice;

- The Contractor shall provide the PIU with a written statement describing the actions that must be taken to terminate the nonconformity, the actions taken to mitigate its consequences, and the expected results of these actions. If restoration is completed satisfactorily within the specified period, no further action will be taken;
- If the Contractor does not correct the situation within the specified period, the PIU will impose a monetary fine in accordance with the terms of the contract;
- In the event that non-compliance results in physical damage to the environment or its destruction, the PIU shall have the right to carry out or cause to be carried out such remedial works as may be necessary to compensate for such damage and to recover from the Contractor all costs incurred in connection therewith;
- In case of disputes, disagreements, etc. between any parties regarding or in connection with the interpretation of the terms of the ESMP, disagreements regarding the implementation or method of implementing the terms of the ESMP, etc. any party has the right to request that the issue be referred to specialists or government agencies for an arbitration decision; and
- The PIU always has the right to stop work and/or certain activities at the site in case of non-compliance or non-compliance with agreed measures to eliminate the consequences.

If the remedial actions are not completed within the specified time, the PIU will immediately hire another contractor to carry out the remedial actions and will deduct these costs from the construction contractor's next payment. For major violations - cases where long-term or irreversible damage is caused - a financial penalty will be imposed in addition to the cost of restoration work. To minimize damage, restoration work will be carried out without delay.

The construction contractor(s) must regularly copy relevant documents to the ESIA. These documents should, as a minimum, include updated progress reports, updated work program, letters of application for various licenses/permits under environmental laws, and all current licenses/permits. Upon request, the ESIA must also have access to the Site Work Log.

After reviewing the documents, the Contractor's Environmental specialist shall advise the Contractor of any non-compliance with contractual and legal environmental and pollution control requirements for further action. If the PIU or Contractor's Environmental specialist concludes that the current status of the license/permit application and any preparatory environmental and pollution control work may not be consistent with the work program or may result in a potential violation of environmental and pollution control requirements during the work, they must notify the Contractor and PIU about this.

8.2.1. Site monitoring

The Environmental Safety Officer and the Social Safety Officer shall conduct a surveillance program on a daily basis or as needed at selected construction sites and regular inspection locations. The surveillance program should include, at a minimum:

- Monitoring noise levels at identified sensitive sites using portable equipment; monitoring should be carried out during construction activities such as excavation, drilling, power generation, transport of materials and construction at night, if any. Noise monitoring should be carried out near villages, schools and other sensitive sites along the project route;

- Visual checks for the presence of dust in the air during the demolition of buildings, processing and storage of bulk materials, transport routes near villages; and
- Visual inspection to check water quality in rivers, fishponds and lakes affected by construction work, eg increased turbidity, odor, color, fish kills, etc. Inspections should also cover bodies of water adjacent to construction sites and construction camps.

During the peak construction period or upon request, the PIU will also conduct additional measurements using manual or other appropriate equipment to determine compliance with standards. If non-compliance with environmental quality criteria is detected, additional inspections and monitoring must be carried out.

8.2.2. Penalty arrangements

Any inexcusable failure to comply with the terms of the ESMP will be considered sufficient grounds for the imposition of a financial penalty. A system of penalties for violations provided for in this EMP shall be developed in accordance with the established procedure as a guide for use at the facility. The Environmental specialist will adjust the amount of fines depending on the severity, actual or potential impact and environmental risk existing at the time the offense was committed. These penalties will be considered in addition to any financial penalties imposed for damage by the relevant government authorities.

8.3. Environmental monitoring system

8.3.1. Objectives

Independent environmental monitoring should be conducted to ensure the project is compliant and effective in relation to the data gaps identified in the ESIA, and to continue to collect baseline data where necessary. It is important to develop a monitoring program and monitoring frequency to be able to demonstrate both the overall effectiveness of the project work and the short-term impacts associated with peak construction activities. More specifically, the environmental monitoring program, being an integral and critical part of the ESMP, should pursue the following goals:

- Determine the true extent of the environmental and social impacts associated with the project;
- Control of impacts arising during the construction process as specified in the ESIA report(s);
- Check the pollution standards applicable to the project during construction;
- Verification and supervision of the implementation of environmental decisions during construction based on the ESIA report;
- If necessary, collect additional baseline data to ensure that the project's mitigation measures are working and effective;
- Suggest mitigation measures in case of unexpected impacts;
- Invite the Customer to coordinate work with central and local environmental organizations to resolve outstanding issues related to environmental protection within the project;
- Assessment of the impact of measures to reduce environmental impact at the stages of pre-construction, construction and operation; and

- Confirm the impacts predicted in the ESIA, including those impacts that were not predicted.

8.3.2. Monitoring frameworks

The environmental monitoring scheme will define roles and responsibilities for the construction period. Additional monitoring may be continued during the operation phase by decision of the PIU.

The objectives of environmental monitoring are as follows:

- Ensuring that construction works comply with all government regulations and ESIA conditions;
- Determine how successful measures have been to reduce potential environmental and social impacts;
- Obtaining additional baseline environmental and social data;
- Study feedback from local residents on the success of measures to reduce environmental impact; and
- Ensure compliance and implement contingency plans should proposed mitigation measures fail to minimize or eliminate impacts associated with the Project.

Monitoring during construction of the project will include the following two activities:

- Measuring the success of implemented mitigation measures; and
- Collection of data for environmental assessment before and after construction.

Visual observations to identify potential environmental and social issues, combined with checklists, are a core component of construction monitoring. Monitoring will also include controls to ensure compliance with government laws and regulations, as well as the terms of the ESIA.

Below are the basic requirements for developing an environmental monitoring plan.

Table 23: Requirements for an environmental monitoring plan

Environmental Monitoring Plan
The objectives of the environmental monitoring plan are: a) to ensure that project components comply with all laws and approval conditions; b) evaluate the success of proposed mitigation measures; c) continue baseline monitoring and d) facilitate ongoing review of activities after completion of construction and operation.
<p>Description:</p> <p>Environmental monitoring will be carried out during construction and operation. Detailed information about the proposed environmental monitoring program is presented in the ESMP. The focus of construction phase monitoring will be on systematic observations to periodically assess the success of proposed mitigation measures and continue to collect baseline data after completion of the ESIA.</p> <p>Environmental monitoring during the construction phase will be carried out by the company's supervisory staff; the detailed allocation of work will be organized after staff selection and determination of the scope, scale and complexity of monitoring that will be appropriate. Monitoring will include routine work performed by the supervision company to verify compliance with standards during operation, as well as inspections by the supervision company to assess overall compliance with standards and in response to complaints or problems that may arise. Specific aspects of monitoring to be considered during construction include:</p>

<p>Noise</p> <p>Air quality</p> <p>Water quality and water resources</p> <p>Sedimentation and erosion</p> <p>Protected and ecological areas of importance, if applicable</p> <p>Physical cultural resources</p> <p>Access roads</p> <p>Resettlement of displaced persons Land acquisition and compensation</p> <p>Land reclamation</p> <p>Supervision and evaluation of the effectiveness of monitoring activities is carried out by an independent environmental monitoring consultant</p>
<p>Deadlines/schedule:</p> <p>Environmental monitoring should begin immediately upon receipt of project approval, and observers should be ready to mobilize before construction starts.</p>
<p>Responsibility:</p> <p>The PIU and the Consultant are responsible for environmental monitoring during construction</p> <p>The PIU and the Consultant will prepare work plans for environmental monitoring.</p> <p>The supervising company will follow up on regular environmental monitoring and implementation of the consultant's requirements, and report all findings regularly and transparently to funding organizations, such as the World Bank, and other stakeholders, providing them with an opportunity for interaction and feedback for corrective action, if necessary.</p>

8.4. Social monitoring system

8.4.1 Monitoring frameworks

A social monitoring system for the construction of an Agro-logistic center can help ensure that the project is carried out in a socially responsible and sustainable manner.

The project Social Monitoring is a crucial step that needs to be undertaken to ensure compliance and project performance in relation to the data gaps that have been identified in the Environmental and Social Impact Assessment (ESIA). This monitoring process is necessary to address any gaps in data collection and continue baseline data collection, where necessary.

To effectively carry out the Social Monitoring, it is important to design a comprehensive monitoring program. This program should be designed in a way that allows for the demonstration of both the overall performance of the project works and the short-term impact resulting from peak construction activities.

The monitoring program should include a range of indicators that can accurately measure the social impacts of the project. These indicators may include factors such as changes in community well-being, livelihoods, access to resources, and social cohesion. Additionally, it may be important to monitor any potential social conflicts or tensions that may arise as a result of the project.

The frequency of the monitoring activities should be determined based on the specific needs of the project. It is important to consider both the long-term impacts of the project as well as any short-term impacts resulting from peak construction activities. This will allow for a comprehensive understanding of the project's performance and its effects on the surrounding communities.

Here are some steps to develop such a system:

- Identify stakeholders: Identify the key stakeholders involved in the construction of the Agro-logistic center. This may include local communities, farmers, workers, NGOs, government agencies, and other relevant parties.
- Define social objectives: Clearly define the social objectives and outcomes that the project aims to achieve. This could include promoting local employment, protecting the rights of workers, minimizing environmental impact, and fostering community development.
- Establish monitoring indicators: Develop a set of monitoring indicators that will help assess the project's progress towards achieving its social objectives. These indicators should be measurable and aligned with international standards and best practices.
- Conduct baseline assessment: Conduct a baseline assessment to establish the current social conditions and identify potential risks and opportunities. This assessment should involve engaging with local communities, conducting surveys, and gathering relevant data.
- Develop monitoring mechanisms: Establish mechanisms for ongoing monitoring of the project's social performance. This could include regular site visits, stakeholder consultations, feedback mechanisms, and data collection through surveys or interviews
- Engage stakeholders: Engage with stakeholders throughout the project lifecycle to ensure their concerns and interests are taken into account. This could involve regular meetings, workshops, and consultations to gather feedback, address grievances, and promote transparency.
- Report and communicate: Regularly report on the project's social performance and communicate the findings to stakeholders. This can help build trust, demonstrate accountability, and ensure transparency.
- Continuous improvement: Use the monitoring data and feedback from stakeholders to identify areas for improvement and implement corrective actions. Continuously review and update the monitoring system to adapt to changing circumstances and emerging issues.
- Collaborate with external organizations: Collaborate with external organizations such as NGOs, academic institutions, or industry associations to gain additional expertise and support in monitoring and improving the project's social performance.
- Evaluate and learn: Conduct periodic evaluations to assess the effectiveness of the social monitoring system and identify lessons learned. Use these insights to improve future projects and enhance the overall social impact of the Agro-logistic center.

9. INSTITUTIONAL MECHANISMS

The project initiator - the Ministry of Agriculture of the Republic of Tajikistan will be the author of the project/executing agency (EA). The Ministry's ability to develop engineering designs and tender documents with environmental components is well developed. In order to implement the Project, the Government of the Republic of Tajikistan established a "Project Implementation Unit".

The PIU, as a government agency, will be responsible for overseeing and monitoring the implementation of the ESMP by contractors. To achieve this, the PIU should conduct field visits approximately twice a month. The PIU will be supported by a Project Implementation Consultant (PIC). Contractors will produce monthly reports on the progress of the ESMP implementation. Based on these reports and its own field visits, the PIU should produce monthly monitoring reports on the implementation of safeguards and safeguards, explaining the progress of the Environmental and Social Management Plan (ESMP). The reports must contain all non-conformities (ESMPs) and list all HSE-related incidents and accidents that occur during the implementation of the Project. Based on these reports, environmental and social monitoring specialists will prepare semi-annual reports on monitoring the effectiveness of protective measures and submit them to the World Bank, the Ministry of Agriculture and other relevant national authorities. In this case, the PIU will be supported by a project implementation consultant.

In addition, the PIU will perform the following functions: (i) liaise with the Ministry of Agriculture to ensure that all environmental requirements and mitigation measures identified during the environmental assessment of the project are included in the contract pre-qualification and tender documents for suppliers and contractors; (ii) providing support in the development of any additional requirements that become apparent after fine-tuning; (iii) provide training and project awareness to MoA staff, PIU and project stakeholders; (iv) interaction with the Committee on Environmental Protection under the Government of the Republic of Tajikistan and people affected by the Project; (v) conducting primary supervision of the Contractor's initial construction measures; (vi) monitoring the progress of complaints resolution, as well as investigating the actual state of affairs regarding certain complaints.

In order to effectively carry out these tasks, the PIU has recruited a Social Specialist and an Environmental Specialist. The presence of a dedicated Environmental & Social Development Specialist at the PIU is crucial for ensuring the responsible and sustainable implementation of development projects. Their expertise will contribute to minimizing environmental and social risks, promoting stakeholder engagement, and enhancing project outcomes. Therefore, it is recommended to hire or second an experienced specialist for this role at the earliest convenience.

9.1. Contractor's Environmental and Social Officers (ESO)

The Contractor will be required to appoint at least one competent person as the Contractor's Environmental staff and one as the Contractor's Social staff who will support the Environmental Officer (EO). They will be in constant contact and responsible for practical aspects such as negotiations, training, monitoring and site inspections. The

EO must have adequate experience in environmental management and must have the skills necessary to ensure environmental management and performance indicators for all employees of the company. The qualifications and competence of the proposed manager must be approved by the environmental consultant for the supervision. The EMP will be responsible for overseeing the Contractor's internal compliance with the ESMP requirements and ensuring compliance with environmental requirements. The ES will be a permanent employee of the construction contractor's ESMP for the entire duration of the contract.

9.2. Grievance Redress Mechanism (GRM)

Grievance redress mechanisms for various projects are developed in accordance with national legislation as well as international standards, and usually address both environmental and social issues (the latter most often arising in connection with land acquisition and resettlement processes). Complaints and appeals can be resolved through the following steps and actions in accordance with the existing grievance resolution mechanisms established in the PIU:

First step: A joint project grievance redressal committee will be established for the affected district administrations. It includes two members from each affected community (one member is affected by the project and the other is not), one representative from each of the affected jamoats, and one representative from the land administration department of the district administration. One of the representatives of the hukumat is elected as the chairman of the committee (the choice will be agreed upon within the relevant district administration). Complaints must be accepted, processed and resolved within 14 days from the date of filing/registration.

Second Step: In case the Grievance Redressal Committee at the project level is unable or has failed to resolve the grievance within the 14-day period, the grievances must be submitted through the district office representative to the PIU/MoA at the central level. Elected representatives of affected communities will have the opportunity to mediate by providing their written comments and suggestions to the PIU. The PIU manager will make the final decision after assessing the complaint and carefully preparing the decision of the PIU specialists. Complaints must be accepted, processed and resolved within 7 days of submission/registration.

Third step: if a solution is not reached within 14 days at the PIU/MoA level, then those affected by the project have the right to also submit their complaint to the appropriate court.

When applying the Grievance Redress Mechanism, project-affected persons have the right to seek assistance from a resettlement specialist at the PIU, who may be assisted by national and international consultants.

Leaflets and brochures containing information about the Project, as well as contact addresses/telephone numbers, are general and available at the level of each respective jamoat and communities.

It is recommended that existing and successfully implemented Grievance Redress Mechanisms be used within the proposed project. In other words, the Grievance Redressal Committee at the district level (in each respective district, road rehabilitation) and the centrally coordinated Grievance Redress Committee at the PIU/MoA level should be able to satisfy the claims of the party filing the complaint. The project steering committee is able to assist the PIU/MoA in the proper functioning, monitoring and

reporting of the GRM

Grievance Logs along with Grievance Handling Forms are kept on site with all grievances recorded in the logs and tear off coupons issued to project affected persons to ensure proper and transparent grievance resolution process.

The GRM log will include information about what actions have been taken, what actions have not yet been completed, and who is responsible for each action. The status of the GRM highlighting open cases will be included in project reports.

The GRM should be established in such a way that, among other things: (i) it is easily accessible to everyone and as close to it as possible; (ii) complaints should be encouraged in any form (oral/written), including anonymous requests; (iii) the composition of the complaints bodies should be inclusive and have the necessary powers; and (iv) are bound by appropriate protocols in terms of timing for addressing, communication and logging, namely being a repository.

GRM structure: The GRM within the project will consist of various channels. Consideration of applications received from beneficiaries begins with an appeal from representatives of local government bodies (jamoat / mahalla) and/or a project social development consultant. The social development consultant enters the complaint into the register of complaints and suggestions. If the issue cannot be resolved to the complainant's satisfaction within 5 days, it is escalated to the next level. An entry is made in the register of complaints and suggestions about the state of resolution of the problem or the decision to transfer it to the next level.

Next, the beneficiary sends his written complaint to the PIU. The complaint is signed and dated by the injured party. The responsible person (social development consultant) of the PIU will act as a contact person who is a direct channel of communication with the beneficiary.

If the beneficiary is unable to submit a written complaint, the social development consultant writes the complaint on behalf of the aggrieved party and also documents informal complaints and suggestions. The entire procedure of the grievance redress mechanism will be carried out according to the requirements of the project.

The Social Development Consultant deals with violation issues to determine the validity of complaints and suggestions. If complaints or suggestions fall within the scope of the project, the PIU will inform the applicants and assistance will be provided. The response is given within 14 days, during which time meetings and discussions between the responsible parties and the injured party are held. If the complaint relates to a property valuation, then a second or even third valuation is carried out to satisfy both parties. The Social Development Consultant assists the aggrieved party at all stages to help them resolve their grievances and ensure the best possible way to resolve the issues.

If, after receiving a response from the PIU, the complaint is not resolved, the Project will use a Conflict Resolution Commission (CRC). The CRC consists of at least 5 members, 2 of which are members of the PIU. The remaining 3 members must be: generally recognized NGOs operating in Tajikistan; respected persons of appropriate reputation (for example, a respected lawyer or professor), if any; representatives of project cities. The Conflict Resolution Commission is created at the request of the beneficiary, the PIU or local Hukumats (in the project implementation area). Decisions made by the commission and agreed upon between all parties are legalized in the form of an order from the participating Hukumats.

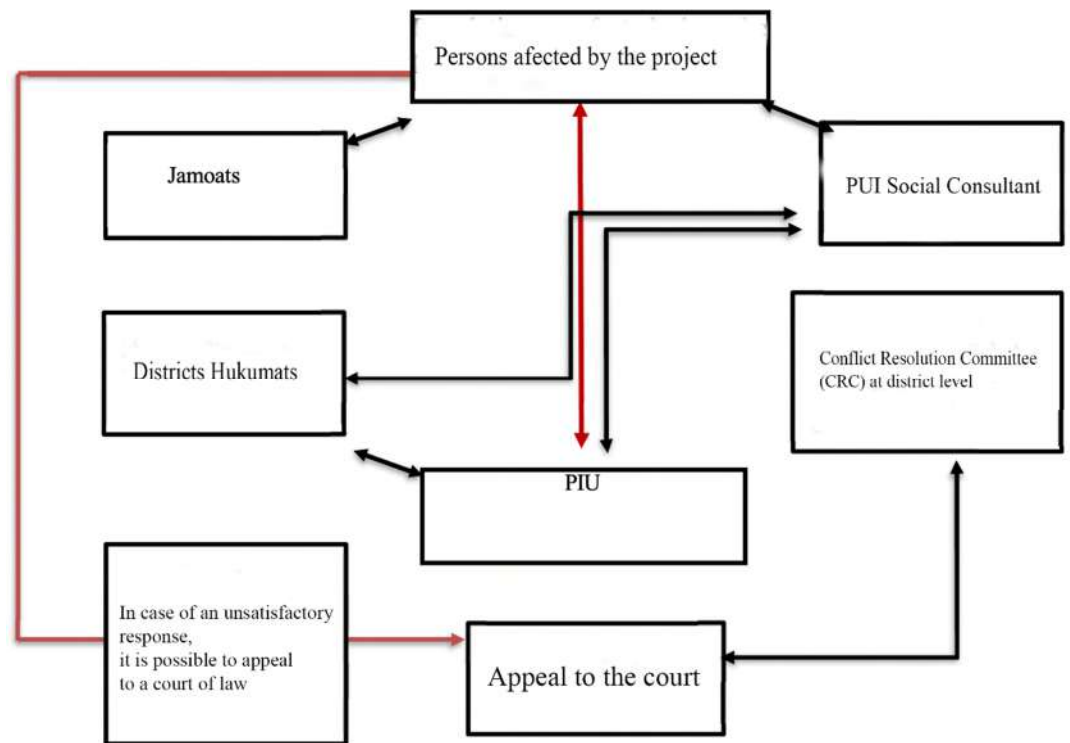


Figure 16: GRM structure as part of the project

9.3. World Bank Grievance Redress System

Local communities and individuals who believe that they are being negatively impacted by a World Bank (WB)-supported project may submit complaints to existing project-level grievance mechanisms or the WB Complaint Redress Service (GRS). The GRS ensures prompt consideration of complaints received in order to resolve problems associated with the project. Project-affected communities and individuals can submit their grievances to the World Bank's independent review panel, which will determine whether harm has been or may be caused as a result of the Bank's failure to comply with its policies and procedures. Complaints may be submitted at any time after they have been brought directly to the attention of the World Bank and Bank Management has been given an opportunity to respond. For information on how to file complaints with the World Bank's Corporate Complaint Redress Service (GRS), please visit

For information on how to submit complaints to the World Bank inspection team, please visit the World Bank website

9.4. Capacity assessment and proposed capacity building activities

A key component of the success of the ESMP depends on operational efficiency, which may require capacity building of PIU staff and construction contractors and possibly national consultants.

Considering that the current capacity of contractors to manage ESMP issues is average

and their management systems and stakeholder engagement require further improvement; An institutional strengthening and training program will be developed by the PIC in collaboration with the PIU. The program will focus on guiding the proponents (in particular the Ministry of Agriculture), contractors to implement the ESMP, in relation to WB and Tajikistan environmental, health and safety laws, regulations and policies. The training will be conducted by the PIU and the Project Implementation Consultant's environmental specialist.

The PIU and Supervision Consultant will ensure that the training and capabilities of contractors' personnel are sufficient to perform the assigned tasks prior to the start of construction. This will be achieved by having appropriate personnel prepare a site specific ESMP as part of the training programme. The ESMP estimate allocates a budget for training.

Building capacity to effectively implement environmental and social safeguards is a key element of the ESMP. Capacity building for environmental and social safeguards management will need to be carried out at all levels of the project, including MoA, PIU, Supervision Consultant and contractors. At the construction site, the Supervision Consultant will take the lead role in implementing the capacity building plan, although contractors will also be responsible for providing training to their staff and workers. The various aspects covered by capacity building will include general environmental and social awareness, key environmental and social aspects of the locality, key environmental and social impacts of the project, ESMP requirements, health and safety aspects and waste management. Table 24 provides a summary of the various aspects of environmental and social training that will be carried out at the construction site. The PIU may revise the plan as necessary during project implementation.

During the Operation and Maintenance phase of the project, these trainings will continue to be conducted by **Ministry** of Agriculture personnel for all relevant personnel.

Table 24: Training on environmental and social issues

Description	Parties concerned	Responsible parties	Timelines
Monitoring the implementation of the Environmental and Social Action Plan. Management information system (tracks what needs to be done and when). Grievance Redressal Mechanism and How Community Complaints will be Redressed.	Staff of the environmental and social monitoring unit of the PIU and Ministry of Agriculture	Through training agencies/organizations	Before the start of construction work and repeated (if necessary) during the project
General environmental and socio-economic awareness; Environmental and social sensitivity of the project area of influence; Mitigation measures; Community Issues and Employee Code of Conduct;	PIU; Supervision Consultant; selected group of specialist contractors	Supervision Consultant	Before the start of field work. (Repeat every six months)

Description	Parties concerned	Responsible parties	Timelines
Grievance Redress Mechanism; EMP Transmitted Disease Awareness Social and cultural values.			
ESMP; Waste disposal; Health and safety	Construction Group	Contractors	Before the start of construction work and repeated (if necessary)
Road safety; Defensive driving/ Garbage removal; Cultural values and social sensitivity	Drivers	Contractors	Before the start of field work. (Repeat every six months)
Camp work; Garbage removal; Health and safety Conservation of natural resources; Cleaning.	Camp staff	Contractors	Before the start of field work. (Repeat every six months)
Restoration requirements; Recycling	Recovery Team	Contractors	Before the start of reclamation work.

10. PUBLIC CONSULTATIONS AND DISCLOSURE

ESIA specialists consulted with local officials from Free Economic Zone on the draft ESIA. During the consultations, specialists presented basic data on the preliminary version of the ESIA. During the consultations, participants were informed about the selection procedures, potential impacts, and measures that need to be taken to prevent/mitigate potential environmental and social impacts. It should be noted that these consultations did not include resettlement aspects and therefore this section focuses only on the relevant environmental and social issues that were raised during the consultations. The list of officials consulted is given in Appendix 1.



11. FINDINGS AND RECOMMENDATIONS

In conclusion, after conducting a comprehensive study and impact assessment of the agro-logistics center project, we have determined that its construction is viable and holds great potential for the Republic. However, it is crucial to address potential negative environmental and social repercussions.

To mitigate environmental impacts, it is imperative to implement a series of measures tailored to each specific concern. These could include utilizing low-emission equipment, implementing dust control strategies, and incorporating alternative energy sources. Regular monitoring and evaluation of these measures are essential to ensure their effectiveness and make necessary adjustments for continuous improvement.

Collaboration with government bodies and stakeholders is recommended to provide ongoing support and foster the project's development. This collaborative approach will not only facilitate successful implementation but also enhance engagement with the local community.

By following these steps, we can establish an environmentally sustainable and socially responsible agro-logistics center that will not only benefit farmers but also contribute positively to the environment and society at large.

ANNEX 1



Маъмурияти
минтақаи озоди иқтисодии «Сугд»

Қ А Р О Р

Администрация
свободной экономической зоны «Сугд»

Р Е Ш Е Н И Е

аз «12» 03 2024с.

№ 04

ш. Хучанд

«Дар бораи ҷудо ва вобаста намудани қитъаи замин
ба Маъмурияти минтақаи озоди иқтисодии «Сугд»

Мутобиқи моддаҳои 15, 26-и Қонуни Ҷумҳурии Тоҷикистон «Дар бораи минтақаҳои озоди иқтисодӣ» аз 25 марти соли 2011, №700 (Қонун №1581 02.01.2019 сол), моддаҳои 19, 26, 30-и Кодекси замини Ҷумҳурии Тоҷикистон, Қарори Хукумати Ҷумҳурии Тоҷикистон аз 1 сентябри соли 2005, №342 «Қоидаҳои ҷудо кардани қитъаҳои замин барои шахсонӣ воқеӣ ва ҳуқуқӣ», банди 6 моддаи 20-и Кодекси шаҳрсозии Ҷумҳурии Тоҷикистон, бандҳои 2 (зерибанди 6) моддаи 15-и Низомномаи минтақаи озоди иқтисодии «Сугд», мақбули Вазорати кишоварзии Ҷумҳурии Тоҷикистон аз 15 феввали соли 2024, №3/7-506 ва ҳуҷуси комиссияи ҳамоҳангсозии Маъмурияти минтақаи озоди иқтисодии «Сугд» оид ба мувофиқаи намудани қитъаи замин, танзими масъалаҳои меъморӣ, шаҳрсозӣ ва сохтмонӣ» аз 01 марти соли 2024, №01-ро ба назар гирифта, Маъмурияти минтақаи озоди иқтисодии «Сугд» қарор мекунад:

1. Ба МД Маъмурияти минтақаи озоди иқтисодии «Сугд» аз ҳисоби заминҳои минтақаи озоди «Сугд», бо масоҳати умумии 20 000 (бист ҳазор) метри мураббаъ, барои лоиҳакашӣ ва сохтмони иншооти Маркази тақсимоти яқлухти маҳсулоти кишоварзӣ (маркази логистика) барои истифодаи бемӯҳлат, ки аз ҷониби маблағҳои грантии Бонки Умумиҷаҳонӣ сохта мешавад, қитъаи замин ҷудо ва вобаста карда шавад.

2. Комиссияи ҳамоҳангсозӣ оид ба интиҳоб ва вобастакунии қитъаи замин ва танзими масъалаҳои меъморӣ, шаҳрсозӣ ва сохтмони Маъмурияти минтақаи озоди иқтисодии «Сугд» вазифадор карда шавад, ки додани иҷозати сохтмонро тибқи талаботи санадҳои меъёрӣ ҳуқуқии Ҷумҳурии Тоҷикистон ва Кодекси шаҳрсозӣ ба роҳ монанд.

создавания ипотечного залога на мувозимати маъмурияти зирои Суд
пирфтани маркази агрологистика чораҳои зарурӣ андешид.

4. Назорат аз рафти иҷроиши қарори мазкур ба зимми муовини
якуми Роҳбари Маъмурият вогузор карда шавад.

Роҳбари Маъмурият



М. Муҳаммадзода

Administration of the Free Economic Zone "Sugd"

DIRECTIVE

from March 12, 2024, No. 04
Khujand City

On Allocation and Provide the Land from Free Economic Zone "Sugd"

According to Articles 15 and 26 of the Law of the Republic of Tajikistan "On Free Economic Zones" dated March 25, 2011, No. 700 (Law No. 1581, 02.01.2019), Articles 19, 26, and 30 of the Land Code of the Republic of Tajikistan, Government Decision of the Republic of Tajikistan from September 1, 2005, No. 342 "Rules for Allocation of Plots of Land for Legal Entities", Clause 6 of Article 20 of the Urban Planning Code of the Republic of Tajikistan, Clause 2 (Subsection 6) of Article 15 of the Regulation of the Region Economic Freedom "Sugd", the letter of the Ministry of Agriculture of the Republic of Tajikistan dated February 15, 2024, No. 3/7-506, and the conclusion of the coordination commission of the Administration of the Free Economic Zone "Sugd" on the alignment of the land plot, regulation of architectural issues, and urban planning dated March 1, 2024, No. 01, taking into account, the Administration of the Free Economic Zone "Sugd" decides:

1. To allocate and provide a plot of land with a total area of 20,000 (twenty thousand) square meters from the land of the Free Economic Zone "Sugd" to the project and construction of facilities of the Central and wholesale distribution of agricultural products (Agrologistics center) for indefinite use. This plot of land, which will be built using the grant funds of the World Bank, should be allocate and provided.
2. The coordination commission on the selection and assignment of the plot of land and the regulation of architectural, urban planning, and construction issues of the Administration of the Free Economic Zone "Sugd" should be obliged to issue construction permits in accordance with the requirements of the legal regulations of the Republic of Tajikistan and the Urban Planning Code.
3. The supervision of the implementation of this decision should be entrusted to the first deputy head of the Administration.

Head of Administration,
M. Mohammadzade

ANNEX 2.

List of consultations held with decision-makers in the Sughd region in the framework of the “Strengthening Resilience of the Agriculture Sector Project” to determine the socio-environmental impact of the project

#	Name	Title	Phone
1.	Yakubi Anvar Shavkatovich	Deputy Chairman, Sughd region	927-77-85-72
2.	Ahmedov Sharifjon Nasimovich	Head of the Department for Investments and State Property Management of the Sughd Region	927-10-92-45
3.	Sharifov M.M.	Head of the Main Agricultural Department of the Sughd region	931-92-37-10
4.	Umarzoda I.	First Deputy of Land Administration of Sughd Region	927-75-85-75
5.	Aliev Saidjon	Head of the Trade Department of the Sughd region	928-33-33-03
6.	Kobilshohov Raufsheh	Leading specialist of the construction department of the Sughd region	929-30-70-70
7.	Nozimi Bahriddin	Director of the representative office of the State Unitary Enterprise "Khojagii Manziliyu Kommunalii" in the Sughd region	927-71-99-69
8.	Rajabov Murodjon	Head of the department of work with mahalas in Khujand	928-90-00-12
9.	Umarov M.	Chairman of the Mahalla Committee of Microdistrict 3, Khujand	928-70-32-39
10.	Hakimov Nasim	Deputy Director of the Free Economic Zone (FEZ “Sughd”)	935-05-31-06
11.	Boboev Farhod	Representative of the Joint Stock Company "Barki Tojik" in the Sughd region	927-73-40-30

Consultations were held from September 2023 to 15 December 2023

MINUTES

of public consultations on social and environmental assessment within the “Strengthening Resilience of the Agriculture Sector Project”

Khujand city, December 14 - 15, 2023

Attendees: Akhmedov Sh. - Head of the Department for Investments and State Property Management of the Sughd Region, Sharifov M. - Head of the Main Agricultural Department of the Sughd region and 23 invitees

Agenda:

1. Brief information about the Project

Goals and objectives of social and environmental assessment

Review of the GRM for the project.

(Materials about the project were prepared in Tajik and Russian. Meetings were conducted in Tajik)

Sh. Akhmedov, H Head of the Department for Investments and State Property Management of the Sughd Region, delivered a welcoming speech.

In his speech, he spoke about the goals and objectives of the planned project, the scale of its implementation and the expected benefits from the project not only for the region's agriculture, but also for the industrial and trade sectors.

Representatives of BARS Consulting informed the participants about the goals and objectives of the project, its components, as well as the goals of conducting social and environmental assessments. During the meeting, the mechanism for considering complaints and appeals from citizens was explained.

It was noted that the project consists of the following 4 components:

Component 1. Strengthen seed, seedling, and planting material systems

Component 2. Support investments in agri-logistical centers for horticulture value chains

Component 3. Strengthen public capacity for crises prevention and management

Component 4. Project management and coordination

Particular attention has been made to subcomponent 2.1. Support for the development and functioning of the ALC. It was noted that during the implementation of this subcomponent, Agro logistics centers will be constructed in three regions - Dushanbe / DRS, Khatlon region / Bokhtar zone and in the Sughd region in the city of Khujand.

While talking about the possible social and environmental impacts of the project, participants were asked questions on these topics. In addition, information was given about the mechanism for redressing complaints and other appeals from citizens/beneficiaries under the project. It was noted that, as required by the project documents, the GRM is carried out at 2 levels - local level and central level.

Speeches:

Sharifov M. - Head of the Main Agricultural Department of the Sughd region in his speech, thanked the organizers for information about the project and noted that the implementation of the project could have an effective impact on the standard of living of the population, since agriculture is the main sector of the regional economy and the creation of such centers gives a new impetus to dehkans/farmers. Processing of agricultural products not only provides an opportunity to increase jobs, but also brings more profits.

Sharifov M. noted that the construction of an Agricultural Center at the selected location, that is, on the territory of the Free Economic Zone near the city of Khujand, will bring more profit and does not require large expenses. The land is empty and unsuitable for farming. I do not see any negative social or environmental risks from the implementation of the project; on the contrary, there will be more benefits. I support this project.

Aliev S. - Head of the Trade Department of the Sughd region: I think that industrial processing of agricultural products will greatly improve the quality of products and improve their presentation. As noted here, the products of this center are aimed mainly at export. This is not only new jobs, but also an additional source of profit, this is the development of the regional economy. We support the project and would like to know when construction of the Center will begin?

Answer: after the design of the facility and approval by the Client, a tender for construction will be held.

Rajabov M. - Head of the Department of Work with Mahallas: We work with the population of the city of Khujand and often encounter social problems such as employment, retraining of workers and many others. A new project means new jobs, new profits for the family budget and, of course, an increase in family income, which of course helps improve the quality of life. We are very pleased that the construction of such a modern Agro logistics center is planned in our city.

Umarzoda I.: I represent land management authorities. We know that the project intends to build an Agricultural Center on the territory of the Free Economic Zone. The land there is rocky and is not used for agricultural purposes. The most convenient location was chosen for the construction of the center. There is no negative impact either from an environmental or social perspective. I think that the project will bring only advantages: trees and shrubs will be planted. Of course, we support the project and are ready to help.

Nozimi B.: - As a representative of the public utility sector, I will say this: a very good place has been chosen for the construction of the Agro logistics Center. There is drinking water and sewerage on the plots. The costs will be very low and it will be easy for us to maintain. The sewerage network works well. There won't be any problems. Regarding electricity, I can say that there are power lines there and there is enough power.

Questions

Ibragimov J.: I am a worker. I live next to the Free Economic Zone, this is microdistrict 3. My question is as follows: If we apply, will they hire us or will the workers, that is, the builders, come from other places?

Question: The construction company is obliged to primarily recruit local workers. This is noted in the project documents. Not only men are hired, but women should also be involved in light work, for example, cooks, cleaners and others.

Norov H.: I am a driver by profession. I can get a job too?

Answer: Yes, of course. Drivers will also be needed, not only during construction, but also after the facility is put into operation.

Khaidarov D.: I am the House Manager in the 3rd microdistrict. I will convey what you said to the residents of our house. I think there are quite a few people willing to get a job. What you said about the impact of the project, in my opinion, we only benefit from it. The project is located outside the residential area and cannot have any negative impact. The closest area to this object is our microdistrict, and it is located more than 300 meters away. There are no people living nearby. We support the construction and grateful to the Government of our Republic and the World Bank for supporting our economy.

Sobirov M.: I am a school teacher, I live in microdistrict 3. I realized that an Agro logistics Center would be built. There is also processing of agricultural products and sales. I understand that the project does not harm me personally, and I think it does not harm my neighbors either. Despite this, I have a question about the complaint handling mechanism. You said that complaints will be considered at two levels. The first level is local, that is, at the district level - responsible areas, employees of the contracting company, mahallas if the complaint relates to the project. Will complaints outside the project be considered?

Answer: The project management is responsible only for the implementation of this

project and complaints should be about this project. For complaints on other topics, there are local government authorities. This is their competence.

At this point the discussions were over.

In conclusion, the Head of the Department for Investments and State Property Management of the Sughd Region, Akhmedov Sharifjon, wrapped up the meeting. He said that in recent years the region's economy has been developing rapidly and the implementation of this project gives a new impetus to the development of not only agriculture, but also other sectors of the economy. He thanked the World Bank for supporting the country's economic sector and hoped for the project to be implemented as soon as possible. He emphasized that the executive bodies of the region and the city of Khujand will support the project in every possible way.

Secretary

Valiev M

List of participants of the meeting on the territory of the Free Economic Zone (FEZ), 3rd microdistrict, Khujand

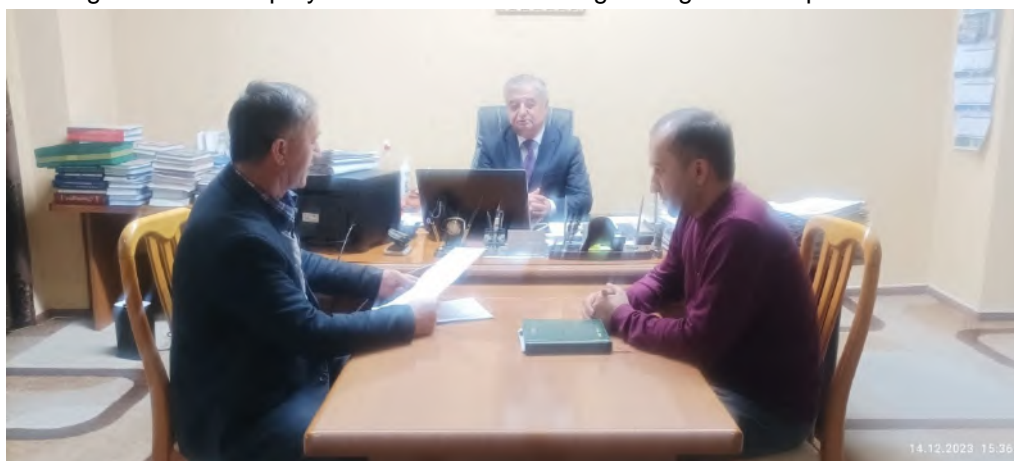
#	Name	Title
1.	Akhmedov Sh.	Head of the Department for Investments and State Property Management of the Sughd Region
2	Sharifov M.	Head of the Main Agricultural Department of the Sughd region
3	Rajabov Murodjon	Head of the department of work with mahalas of Khujand
4	Aliev Saidjon	Head of Trade Department of Khujand
5	Nozimi B.	Director of the representative office of the State Unitary Enterprise "Khojagii Manziliyu Kommunalii" in the Sughd region.
6	Boboev F.	Representative of the Joint Stock Company "Barki Tojik" in the Sughd region
7	Kobilshohov R.	Leading specialist of the construction department of the Sughd region
8	Umarov M.	Chairman of the Mahalla Committee of Microdistrict 3, Khujand
9	Ibragimov J.	Worker
10	Norov H.	Driver
11	Salimi D.	Retiree
12	Muminov M.	Driver
13	Usmanova U.	Sewer
14	Avezov H.	Entrepreneur
15	Boboev T.	Engineer
16	Haidarov D.	House Manager
17	Babchuk B.	Retiree
18	Ghoibnazarova A.	Cook
19	Sobirov M.	Teacher
20	Karimov G.	Worker
21	Kosimov U.	Labor Migrant
22	Avezov Hasan	Labor Migrant

23	Koziev R.	Driver
24	Umarzoda I.	First Deputy of Land Administration of Sughd Region
25	Hakimov N.	Deputy Director of the Free Economic Zone (FEZ "Sughd")

Meeting with residents of the 3rd microdistrict of Khujand



Meeting with the Deputy Chairman of the Sughd region and parties concerned





ANNEX 3. CHANCE FIND PROCEDURES OF PHYSICAL AND CULTURAL RESOURCES

Works could impact sites of social, sacred, religious, or heritage value. "Chance find" procedures would apply when those sites are identified during the design phase or during the actual construction period and the related activity will not be eligible for financing under the project.

- (1) Cultural property includes monuments, structures, works of art, or sites of significant points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.
- (2) The list of negative subproject attributes which would make a subproject ineligible for support includes any activity that would adversely impact cultural property.
- (3) In the event of finding of properties of cultural value during construction, the following procedures for identification, protection from theft, and treatment of discovered artifacts should be followed and included in standard bidding document.
 - (a) Stop the construction activities around the chance find;
 - (b) Delineate the discovered site or area;
 - (c) Secure the site to prevent any damage or loss of removable objects.
 - (d) Notify the supervisory Engineer who in turn will notify the responsible local authorities;
 - (e) Responsible local authorities and the relevant Ministry would oversee protecting and preserving the site before deciding on subsequent appropriate procedures.
 - (f) Decisions on how to handle the finding shall be taken by the responsible authorities and the relevant Ministry. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance), conservation, restoration and salvage.
 - (g) Implementation of the authority decision concerning the management of the finding shall be communicated in writing by the relevant Ministry.
 - (h) Construction work could resume only after permission is given from the responsible local authorities and the relevant Ministry concerning safeguard of the heritage.
- (4) These procedures must be referred to as standard provisions in construction contracts. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered.
- (5) Relevant findings will be recorded in World Bank Supervision Reports and Implementation Completion Reports will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.