



**The Republic of Tajikistan
Ministry of Finance**

Environmental and Social Impact Assessment (ESIA) for
natural, cultural and historical sites
(Khulbuk fortress, Khoja Mashhad and Chiluchor Chashma madrasah) in the
Khotlon region of the Republic of Tajikistan

RURAL ECONOMY DEVELOPMENT PROJECT (REDP)

September 30, 2021

Contents

LIST OF ABBREVIATIONS AND SYMBOLS.....	3
EXPLANATORY NOTE	5
1. Introduction	8
2. Description of the project	9
3. Environmental and Social Baseline Data	24
4. Environmental and social impact	32
6. Preliminary public consultations and design guidelines	45
7. Analysis of alternatives in terms of risks	48
8. Analysis of the composition of the parties involved and recommendations for their participation	51
9. Environmental and Social Management Plan (ESMP)	57
10. Public consultation	77
11. Budget and resources	79
Appendix 1. Information materials	82
Appendix 2. Rules for handling asbestos-containing materials	82
Appendix 3. Preliminary Environmental Inspection Checklist	83
Appendix 4. Checklist of preliminary social checking (screening)	87
Appendix 5. Results of preliminary analysis of the state of the environment and social environment	91
Appendix 6. Recommended Action Plan for COVID-19 Protection	92
Appendix 7. Protocol of public hearings	94
Appendix 8. Data from sociological research	99
Appendix 9. Results of laboratory tests	132

LIST OF ABBREVIATIONS AND SYMBOLS

ACM	Asbestos containing materials
WB	The World Bank
WFP	World food program
WHO	World health organization
GBAO	Gorno-Badakhshan Autonomous Region
GOST	State standard
PAG	Project administration group
F&L	Fuels and lubricants
SEE	State ecological expertise
H&U	Housing and utilities
AP	Affected persons / people
SPS	Security Policy Statement
EA	Executive agency
IE&C	Information, education and communication
EPC	Environmental Protection Committee
DC	Design consultants
CS	Consulting services
VOC	Volatile organic compounds
MDR	Medical and demographic research
MHSPoP	Ministry of Health and Social Protection of the Population
M&E	Monitoring and evaluation
CM	Complaints mechanism
MF	Ministry of Finance
NGOs	non-governmental organizations
EIA	Environmental impact assessment
ESIA	Environmental and social impact assessment
PC	Public consultation
PA	Public association
UN	United Nations
SPNA	Specially protected natural areas
OP	Operational policy
OMR	Environmental Monitoring Report
SEP	Stakeholder Engagement Plan
UTS	Urban-type settlement
MPC	Maximum Permissible Concentrations
RAP	Resettlement Action Plan
MPE	Maximum permissible emissions
LA&R	Land acquisition and resettlement
EMP	Environmental monitoring plan
DPR	Detailed project report
REDP	Rural Economy Development Project
GRT	Government of the Republic of Tajikistan
EMP	Environmental management plan
CEMP	Contractor Environmental Management Plan
IEA	Initial environmental assessment
PAG	Project Administration Guide
RT	The Republic of Tajikistan
SPZ	Special protection zone
POPs	Persistent organic pollutants
USA	the United States of America
SEP	Strategic environmental policy
SES	Socio-environmental standards
CWTP	Central Wastewater Treatment Plant
PIC	Project Implementation Center
EA&RF	Environmental Assessment and Review Framework
PC	Public Organization

Reporting team

Version / Date	Author	Experts
2.0 / 2021-09- 30	Ulugov Umidzhon Amonovich, Ph.D., Public Association "Peshsaf"	Shukurov Ruslan Aleksandrovich, PhD in Law, PA "Peshsaf"
		Mustafina Alina Yusupovna, PA "Peshsaf"
		Poltavets Alexey, PA "Peshsaf"
		Akhmed-Akhunov Daler, PA "Peshsaf"
		Sharipov Bekjon, PA "Peshsaf"
		Mamedova Svetlana, PA "Peshsaf"
		Shukurova Musavara, Academy of Sciences of the Republic of Tajikistan
		Gulbekov Akhmad, volunteer of PA "Peshsaf"
		Radjabov Ulugbek, PA "Peshsaf"

EXPLANATORY NOTE

This Environmental and Social Impact Report has been prepared by NGO «Peshsaf» as part of the Rural Economy Development Project implemented by the Access to Green Finance and Rural Finance Development Center project under the Ministry of Finance of the Republic of Tajikistan and ESF standard of World Bank (WB) compliance process and national environmental legislation. This report provides a detailed description of the expected direct and indirect environmental impacts associated with the proposed Project during key periods of operation and a roadmap to the environmental measures required to prevent and / or mitigate adverse environmental effects associated with the proposed project.

For the preparation of this ESIA report, the Client's proposed documents on the proposed construction of the facility, the design, the proposed developments and their geographic, environmental, social and temporal context, including investments outside the territory or access that may be required, were reviewed and studied. The work was carried out in close cooperation with the PIC of the Ministry of Finance of the Republic of Tajikistan to determine the zone of influence based on the scope and scale of the project. Based on the data examined, an initial report was drawn up, which identified the problem areas of the construction / reconstruction project.

Key findings: Based on the ESF standard of WB, based on the assessment results, the significance of environmental and social impacts, the project was assessed as a significant risk, but can be reduced to a moderate level using the proposed mitigation measures. The study confirmed that there are no major environmental problems that cannot be solved, either prevented, or adequately mitigated to a level acceptable to national and international standards. A comprehensive Environmental and Social Management Plan (ESMP) was prepared with tables listing the mitigation and monitoring actions to be taken during the pre-project, detailed design, construction and operational period of the facility.

Although most of the proposed works are of relatively small scale, they may lead to some outcomes, potentially minor and / or restrained adverse environmental and social impacts, mainly during the construction phase. For example, water and air pollution, noise, soil, erosion, improper landscape planning, leading to the loss of green spaces; possible deterioration of the existing infrastructure of historic buildings due to rising groundwater or ongoing vibration, hazard to workers, etc.

At the same time, the project will bring mainly positive environmental and social impacts. In particular, access to the services of historical and tourist sites will be improved and more sustainable and, as a result, improved well-being with a decrease in poverty and health risks. Direct positive impacts will also result from increased start-ups in the project area, increased employment and increased income, increased resilience to climate change and increased adaptability.

The cumulative impact of the proposed project will be clearly positive in terms of the environment, social point of view and economic development of the region. Historical and cultural sites are of particular interest in terms of tourism development. The restoration of objects requires not only physical intervention in improving the infrastructure of the object, arranging the territory, but also new approaches to involving the public in the process of managing objects, improving work with tourists and visitors. This document presents that the implementation of the plans will help develop local trade, traditional arts and, most likely, will generate new activities.

Executive agency (EA) is responsible for the full implementation of the ESMP. The Executing Agency (EA) has entered into a contract for the fulfillment of obligations related to the implementation of the project.

This study includes an overview and analysis of the current legislation of the Republic of Tajikistan and international standards in the field of environmental protection and compliance with building codes and regulations. This part of the study is aimed at ensuring compliance with applicable national and international legal norms on the part of construction companies, contractors and subcontractors, as well as allowing the Customer to determine the level of possible intervention to change the landscape, structures with minimal damage to the environment and prevent infringement of the rights of citizens.

Analytical research

Guided by the studied documentation received from the Customer, NGO «Peshsaf» identified a number of extremely important actions aimed at identifying the necessary information, which became the basis for the ESIA. Key actions taken included: i) conducting research field visits; ii) planning, organizing, drafting and conducting stakeholder consultations in accordance with the Stakeholder Engagement Plan (SEP); iii) identification of key issues to be considered in the detailed ESIA; iv) development of an ESIA and **ESMP study** in consultation

with stakeholders for approval by the PIC of the Ministry of Finance of the Republic of Tajikistan and the World Bank; and v) finalization of the documentation, taking into account the proposals from the Customer.

Planning of project documentation and analysis of alternatives

The detailed materials provided in this study relate to topical issues of waste disposal, land-use planning, forest reserves, natural habitats, protected areas, important biospheres, wetlands, places of cultural and archaeological interest (both tangible and intangible), displacement common property / utilities resources, relocation of public facilities, environmental aspects and access roads to public facilities.

Systematic comparison of possible alternatives to the proposed location, design and operation of the project - including the "no project" situation - in terms of their potential environmental and social risks and impacts; and formulate the basis for the selection of a specific design project.

Basic research and analysis

An assessment was made of the size of the study area and the relevant physical, biological and socio-economic conditions were analyzed, including any changes expected prior to the commencement of the project. In addition, examine current and proposed development activities within the project area, but not directly related to the project. The trends of changes in the key ecological and social parameters of the territory are also analyzed. The data should be relevant to making decisions about project location, design, operation or mitigation measures. Review primary and secondary data collected and available through the PIC of the MoF, local government archives, and collect additional data if necessary. The following important components are included in this report: physical environment, biological environment and social environment.

Environmental risks and consequences

The report identifies the environmental and social risks, positive and negative impacts that may arise from the proposed project, interpreting the term "environmental" throughout the ESIA study as including impacts on the physical, natural and social environment. All project components and activities with potential environmental and social impacts have been analyzed. The state (degradation) of the habitat, the fragmentation of the habitat, the assessment of the impact on terrestrial and aquatic biodiversity, the impact on fisheries, and the need for ecological flows, etc. were investigated. In order to improve the efficiency of resource use, the ESIA foresaw a study of the water balance of facilities in the area, assessing all uses associated with construction, net positive or negative impacts, taking into account both surface and underground resources of the basin, as well as sensitivity analysis carried out for dry season.

Social implications

Assessing the impact of land acquisition and land-use changes (even if it is public land) on the livelihoods of affected people and their socio-economic conditions through detailed census surveys, and identifying options for the resettlement and restoration of affected people through targeted consultation with affected populations. The impact of the proposed changes on access to public facilities, parking arrangements, public health and safety, gender and employment was assessed.

A format for an environmental and social management and monitoring plan was developed.

Based on the identification of environmental impacts and mitigation measures, PA Peshsaf formulates an Environmental and Social Management and Monitoring Plan, which is developed based on the results of the ESIA study, including environmental and social issues, mitigation measures, location of implementation of specific mitigation measures consequences, timing, monitoring and institutional responsibility.

Stakeholder consultation

During the preparation and implementation of the project, there were ongoing consultations with stakeholders (affected communities and relevant stakeholders) in accordance with the Stakeholder Engagement Plan (SEP) developed for the project. In addition, two major consultation meetings were held at the project site.

At the initial stages of the ESIA studies, consultation meetings were held, including consultations to obtain an informed opinion of the people; women, people with disabilities and other vulnerable groups, etc. and local non-governmental organizations (NGOs). During these consultations, communities are provided with a summary of the project and the various rights to which they are entitled. The consultations are accompanied by photographic material.

Consultations were held following the preparation of draft ESIA reports - with communities as well as with institutional stakeholders. Consultations in view of the SARS-Covid-19 coronavirus pandemic were carried out on an individual basis through meetings, house-to-house visits, and communication with business structures. Final consultations are reflected in the protocols and signatures of all interested parties.

1. Introduction

This ESIA is prepared as part of the new World Bank Environmental and Social Standards (ESSs), which came into effect on October 1, 2018 and replaced the Bank's Environmental and Social Safeguards Policy. In accordance with the ESSP, the basis for the implementation of projects is compliance with ten environmental and social standards (ESS) when lending to investment projects financed by the Bank.

According to the ESRS of the project, for this project are applicable as the main ESSs 1) Assessment and management of environmental and social risks and impacts, and ESS 10) Engagement with stakeholders and information disclosure. As additional: ESS 2) Workers and working conditions; ESS 3) Rational use of resources, pollution prevention and management; ESS 4) Protection of health and safety of the population; ESS 5) Acquisition of land, restriction of land use rights and involuntary resettlement; ESS 6) Biodiversity Conservation and Sustainable Management of Living Natural Resources; ESS 8) Cultural heritage; ESS10) Stakeholder Engagement and Information Disclosure.

This ESIA report is part of an overall assessment of the potential environmental and social impacts associated with refurbishment and rehabilitation works at three sites in the Khatlon Oblast of Tajikistan. These areas were selected based on criteria agreed with the Government during the preliminary assessment. The key parameters were the attribution of objects to historical and cultural sites, as well as an opportunity for the development of tourism.

This study is based on an analysis of the environmental and social due diligence (risks and impacts) of the proposed sub-projects, including pre-construction, construction and operation and maintenance phases, and to assess environmental and social risks and impacts in accordance with the World Bank Environmental and Social Standards. (ESSs) and compliance with national legal, regulatory and policy frameworks on environmental and social aspects.

For the preparation of this study, specialists from PA "Peshsaf" were involved, including researchers, leading scientific and academic universities of the country. The project team was in constant contact with the Customer's specialists, as well as the company that was selected for the design of the project design. Interaction was established at the level of local executive authorities, as well as representatives of local self-government bodies were involved. Local communities, including residents who live in the immediate vicinity of the planned construction / reconstruction site, played a significant role in obtaining the data. Due to the study conducted during the pandemic, the organization and conduct of mass gatherings of the population for discussion were not carried out (recommendation from local authorities). Instead, a walk-through was carried out of every interested person, including government bodies, entrepreneurs, ordinary citizens.

The report uses data on ambient air quality, noise levels, water and soil quality, taking into account vulnerabilities. Particular attention is paid to the availability of physical conditions for the development of tourism, including infrastructure, parking / parking, access to toilets, and other sanitary and hygienic requirements.

Data on natural vegetation for specific sites was analyzed, including trees, shrubs, grasses, etc. fauna of mammals, birds, including migratory birds, insects, fish and species included in the Red Book; ecosystems and ecosystem services, habitat fragmentation, etc.

Socio-economic baseline data are collected for specific sites and cover the population and demographics around the cultural sites; land use and natural resources, including agriculture, fishing, animal husbandry, grazing; other economic activities such as sand mining, tourism, trade, services; social infrastructure and services, including education, health care, communications and others; access, security and existing parking arrangements; public organizations; vulnerable groups and poverty situation; gender aspects; recreation areas / potential; cultural heritage; archeology; points of interest such as cultural practices, cemeteries and monuments; other. Surveys conducted included questions of private and public property, tourism infrastructure, industrial enterprises and places of religious and cultural significance.

The report identifies the environmental and social risks, positive and negative impacts that may arise from the proposed project, interpreting the term "environmental" throughout the ESIA study as including impacts on the physical, natural and social environment. All project components and activities with potential environmental and social impacts have been analyzed. In terms of assessing the impact on wildlife present in and around the project area, experts examined habitat degradation, habitat fragmentation, impact assessments on terrestrial and aquatic biodiversity, impacts on fisheries, and the need for ecological flows, etc.

An assessment of the impact of land acquisition and land-use changes (even if it is public land) on the livelihoods of affected persons and their socio-economic conditions was carried out through detailed census surveys and the identification of options for the relocation of affected people and their restoration through targeted consultation with affected populations. The impact of the proposed changes on access to public facilities, parking arrangements, public health and safety, gender and employment was assessed.

2. Description of the project

2.1. Content of the project

The Government of the Republic of Tajikistan, headed by the Founder of Peace and National Unity, the Leader of the Nation, the distinguished President of the Republic of Tajikistan, is taking significant measures to accelerate the pace of development of the country's economy, attaching great importance to the tourism sector. In his message to the Parliament and the people of the country in 2018, the head of state noted: "The announcement of 2018 as the Year of Tourism and Folk Crafts Development gave a serious impetus to the awareness of the importance of this area in the socio-economic life of the people, and the number of tourists who visited Tajikistan in 2018 compared since 2017 it has increased by 2.5 times, but, however, in order to fully achieve the set goals, one year is not enough. " In this regard, in the country in 2018, the "Strategy for the development of tourism for the period up to 2030" was adopted. The document notes that after gaining independence, Tajikistan inherited an underdeveloped system of the tourism industry, which did not meet the requirements of a market economy. Along with the existing factors contributing to the development of tourism, in the regions of the republic there are a number of other problems that hinder the development of this sector of the sector. Ecological tourism, health tourism, walking, historical and cultural tourism, mountaineering and hunting are named among the priority areas of the tourism industry for Tajikistan. All objects included in this project represent a priority for the development of tourism. However, tourism development depends on natural and ecological conditions, including national culture, customs, national food and drinks, history and cultural heritage, which is an important foundation of the tourism industry. Therefore, the development of the tourism industry should contribute to the fact that from generation to generation, together to show activity aimed at protecting nature and the environment, cultural heritage, national traditions and crafts, is recognized in the national strategy. Tourism has been identified as one of the most important growth drivers for Tajikistan. The growth of the tourism industry aims to create economic opportunities for the local population, especially for vulnerable groups, including women, youth and returning migrant workers. The increased employment opportunities provided by community tourism will allow these groups to be productive and discourage them from activities such as joining religious extremist groups or participating in drug trafficking activities.

The purpose of the implementation of the Rural economy development project (REDP) is to restore three historical objects (Khodja Mashkhad mausoleum, Chiluchor chashma, Khulbuk Fortress) located on the territory of the Republic of Tajikistan.

The drafting of an ESIA by NGO «Peshsaf» for the implementation of Rural economy development project (REDP) fixes the establishment of requirements for construction and other types of work in accordance with environmental norms and standards; the environment as well as the development of the tourism sector in the Republic of Tajikistan.

The project is structured according to four components, organized based on types of interventions and beneficiaries:

Component 1 is aimed at improving the state (public) infrastructure for the development of agribusiness and tourism.

Component 2 supports micro-small and medium-sized enterprises (MSMEs) and entrepreneurs in agribusiness, community tourism and related sectors through equity grants.

Component 3 focuses on skills building, entrepreneurship and business development services so that potential beneficiaries can take full advantage of the grant programs under components 1 and 2.

Component 4 provides coordination and implementation of projects, as well as management and administration of grants.

This ESIA report addresses activities under Subcomponent 1.1: Public Investment in Historical and Cultural Tourism (US \$ 9.3 million): This subcomponent will finance the restoration, beautification, landscaping and general improvement of four cultural and historical sites. One facility is located in MARoB (not considered in this report), and three are in Khatlon region. The project will finance investments as well as technical design and commercialization plans, associated social and environmental assessments and supervision of works. The investment will help: (i) attract more visitors, (ii) stimulate new economic activity on and around the sites, (iii)

increase the experience of visitors to the sites, thereby increasing their costs, and (iv) preserve local cultural values. Construction work under this subcomponent will provide jobs for young people and returning migrants and help improve their skills to prepare them for more specialized jobs in the construction industry in the future. This sub-component, implemented in the Khatlon region, will include investments in three objects - Khulbuk fortress, Khoja Mashhad madrasah and Chiluchor Chashma for the development of a historical and religious network. These three sites are already fragments of tourist routes in this part of the country. The government has already undertaken major restoration work at Fort Khulbuk, and a grant from the United States Ambassadors Fund for Cultural Preservation has financed the restoration of the Khoja Mashhad Madrasah. The project will carry out the restoration by financing the improvement of the landscape surrounding the three sites. Improvements will include landscape architecture such as pathways, green spaces and lighting in and around lots. Since the Khulbuk fortress and the Khoja Mashhad madrasah are UNESCO-nominated sites 19 and the UNESCO application for Khulbuk has already been submitted, all work will be carried out in accordance with UNESCO directives.

2.2. Planned project activities

The project will finance the creation of landscape architecture and other general improvements to properties aimed at preserving their historical value while contributing to the development of local economic opportunities associated with tourism. The project aims to complement past and future archaeological and restoration work by funding landscape improvements around and within the sites (for example, creating pathways, green spaces and lighting on and within the sites), general site improvements (such as fencing, parking lot, visitor center, tourist signs and plumbing), and the creation of spaces in which private economic activity can take place (for example, small gift shops, cafes and restaurants). The project will not finance archaeological work at these sites. A detailed plan will be prepared for each site, which includes a long-term sustainability strategy for the site, as well as identifying key areas of cultural heritage management.

Description of the planned activities at the facilities of sub-component 1.1 in the Khatlon region of Tajikistan.

It is assumed that at these three objects (Khulbuk fortress, Khoja Mashhad madrasah and Chiluchor Chashma) a similar set of construction, repair and restoration works and measures for landscaping and landscaping of the territory will be carried out.

Activities carried out on the territory of Hulbuk

Works Description	Unit	Quantity
GENERAL REQUIREMENTS		
TEMPORARY FACILITIES, CONTROLS AND UTILITIES		
This section includes arrangement of all temporary facilities, controls and connection to utilities to carry out construction works		
Construction and maintenance of temporary facilities	set	1,00
protection of archaeological remains during works	set	1,00
SITE CONSTRUCTION		
SITE PREPARATION		
Work under this section includes the removal of loose rock and other structures.		
Manual soil removal to open archaeological remains (under supervision of an archaeologist)	cubic meters	3500,00
Applying sacrificial conservation layer over archaeological remains	cubic meters	875,00
Clay mortar (conservation)	cubic meters	210,00
SITE CLEARING/CLEANING		
Work under this section pertains to the general site clearing operations and grubbing of the areas in and around the Site of all small plant material and rubbish.		
Dismantling of pavements and foundations: of the cobblestone pavement	cubic meters	1800,00
Dismantling of pavements and foundations: demolition of asphalt concrete pavements using jackhammers	cubic meters	180,00
Pavement stone: loading (mechanically)	tons	1800,00
Pavement stone: unloading (mechanically)	tons	1800,00
Construction waste: loading (manually)	tons	228,60
infill of earth around fortress	tons	200,00
Construction waste: unloading (manually)	tons	228,60
HARDSCAPES, UNIT PAVERS, POROUS PAVING (PATHS)		
Application of bottoming (cushion) and leveling layers (sand)	cubic meters	165,00
Sand for construction work after crushing screenings, grade 800, medium	cubic meters	283,50
Application of bottoming (cushion) and leveling layers of base: of crushed stone	cubic meters	850,50

Crushed stone made from construction-quality ballast stone, grade Dr (grit) 8, fraction size 20 to 40 mm	cubic meters	850,50
Installation of concrete curbs: next to other types of pavements	meters	180,00
Side curb stones BR 100.20.8 / concrete B22.5 (M300) (GOST 6665-91)	meters	180,00
Installation of paving stones/slabs	sq.meters	5670,00
Paving (type 1 - baked bricks)	sq.meters	3300,00
Paving (type 2 - baked bricks, imitation of historic paving pattern) - for archaeological paths	sq.meters	2370,00
HARDSCAPES, UNIT PAVERS, POROUS PAVING (PARKING)		
Application of bottoming (cushion) and leveling layers of base: of sand	cubic meters	100,00
Sand for construction work after crushing screenings, grade 800, medium	cubic meters	100,00
Application of bottoming (cushion) and leveling layers of base: of crushed stone	cubic meters	300,00
Crushed stone made from construction-quality ballast stone, grade Dr8, fraction size 20 to 40 mm	cubic meters	300,00
Pavement with 4-cm-thick hot-applied dense fine-grained bitumen-concrete mixes of ABC type, density of stone materials: 2.5 to 2.9 tons per cubic meters	sq.meters	2000,00
Road marking with 0.20 m wide thermoplastic lines: continuous	meters	245,00
Marking machines	machine-hours	0,63
Installation of road signs: on steel poles	pieces	5,00
Road signs (material)	pieces	5,00
Installation of steel poles	pieces	5,00
Steel poles (material)	tons	2,50
HARDSCAPES, UNIT PAVERS, POROUS PAVING (ROAD)		
Application of bottoming (cushion) and leveling layers of base: of sand (100 m3 of base material - solid volume)	cubic meters	50,00
Sand for construction work after crushing screenings, grade 800, medium	cubic meters	50,00
Application of bottoming (cushion) and leveling layers of base: of crushed stone	cubic meters	150,00
Crushed stone made from construction-quality ballast stone, grade Dr (grit) 8, fraction size 20 to 40 mm	cubic meters	150,00
Pavement with 4-cm-thick hot-applied dense fine-grained bitumen-concrete mixes of ABC type, density of stone materials: 2.5 to 2.9 tons/cubic meter	sq.meters	1000,00
Road marking with 0.20 m wide thermoplastic lines: continuous	meters	90,00
Arrangement of pedestrian crossing	set	1,00
LANDSCAPING / IRRIGATION		
Preparation of standard planting places for trees and shrubs with a square lump of earth of 1.0x1.0x0.6 m in size with the use of specialized machinery with black mould humus filled into each hole: up to 25%	pieces	350,00
Planting of trees and shrubs with a lump of earth sized: 1.0x1.0x0.6 m	pieces	350,00
Trees with a 2-3 year old crown, height of 1.5-3 m	pieces	50,00
Shrubs (various species), height 1.25 to 1.5 m	pieces	300,00
CONCRETE		
CONCRETE CAST IN PLACE		
Concrete cast foundations and building structures	cubic meters	50,00
MASONRY		
CONCRETE MASONRY UNITS AND BRICK MASONRY		
Structural masonry	cubic meters	180,00
repair of all masonry parts of new fortress	lm	300,00
METALS		
FABRICATION AND INSTALLATION OF STEEL STRUCTURES		
Observation platforms	tons	9,00
DOORS & WINDOWS		
FABRICATION AND INSTALLATION OF DOORS & WINDOWS		
Doors	sq.meters	
Windows	sq.meters	
Other	sq.meters	
FINISHES		
INTERIOR & EXTERIOR FINISH		
Interior finish (plaster)	sq. meters	
Interior finish (ceramic/porcelain tiling)	sq. meters	
Exterior finish (plaster)	sq. meters	
Resilient flooring	sq. meters	

FURNISHINGS		
OUTDOOR SITE FURNITURE		
Application of bottoming (cushion) and leveling layers of base: of sand	cubic meters	4,00
Natural sand for construction work, medium	cubic meters	1,20
Construction of concrete foundations, volume: up to 5 cubic meters	cubic meters	1,80
Heavy concrete, class B15 (M200)	cubic meters	1,80
Installation of anchor bolts in pre-fabricated sockets with the embedment length of: up to 1 m	tons	0,60
Installation of lightweight structures (window sills, drains, guard railing / parapets, etc.)	pieces	0,65
Waste bins	pieces	15,00
Bench (length = 1800 mm)	pieces	50,00
MECHANICAL AND PLUMBING SYSTEMS		
BASIC ELECTRICAL MATERIALS AND METHODS		
External irrigation, water supply & sewage systems	set	1,00
Drilling and completion of water wells (incl. equipment)	set	1,00
Fresh water preparation and waste water treatment	set	1,00
Building interior mechanical and plumbing systems	set	1,00
ELECTRICAL		
BASIC ELECTRICAL		
Installation of electrical equipment (transformer stations)	pieces	1,00
LIGHTING		
Installation of street lighting and façade illumination	set	1,00
Installation of safety road lights (along the pedestrian crossing)	set	1,00

Activities carried out in the Khoja Mashhad

Works Description	Unit	Quantity
GENERAL REQUIREMENTS		
TEMPORARY FACILITIES, CONTROLS AND UTILITIES		
This section includes arrangement of all temporary facilities, controls and connection to utilities to carry out construction works		
Construction and maintenance of temporary facilities	set	1,00
Protection of archaeological remains	set	1,00
SITE CONSTRUCTION		
SITE PREPARATION		
Work under this section includes the removal of loose rock and other structures.		
Dismantling of pavement and existing drainage lines	sq.meters	385,00
SITE CLEARING/CLEANING		
Work under this section pertains to the general site clearing operations and grubbing of the areas in and around the Site of all small plant material and rubbish.		
cleaning out of drainage canal to the west of the site	cubic meters	240,00
repair of the levee to the west of the site	cubic meters	160,00
Dismantling of existing buildings incl. waste removal	pieces	3,00
HARDSCAPES, UNIT PAVERS, POROUS PAVING (PATHS)		
Sand for construction work after crushing screenings, grade 800, medium	cubic meters	1510,00
Application of bottoming (cushion) and leveling layers of base: of crushed stone	cubic meters	1510,00
Application of bottoming (cushion) and leveling layers of base: of crushed stone	cubic meters	4530,00
Crushed stone made from construction-quality ballast stone, grade Dr (grit) 8, fraction size 20 to 40 mm	cubic meters	4530,00
Installation of concrete curbs: next to other types of pavements	meters	1800,00
Side curb stones BR 100.20.8 / concrete B22.5 (M300)	meters	1800,00
Installation of paving stones/slabs	sq.meters	3020,00
Paving (various types)	sq.meters	3020,00
HARDSCAPES, UNIT PAVERS, POROUS PAVING (PARKING)		
Application of bottoming (cushion) and leveling layers of base: of sand	cubic meters	70,00
Sand for construction work after crushing screenings, grade 800, medium	cubic meters	70,00
Application of bottoming (cushion) and leveling layers of base: of crushed stone	cubic meters	210,00
Crushed stone made from construction-quality ballast stone, grade Dr8, fraction size 20 to 40 mm	cubic meters	210,00
Pavement with 4-cm-thick hot-applied dense fine-grained bitumen-concrete mixes of ABC type, density of stone materials: 2.5 to 2.9 tons per cubic meters	sq.meters	1400,00

Road marking with 0.20 m wide thermoplastic lines: continuous	meters	245,00
Marking machines	machine-hours	0,63
Installation of road signs: on steel poles	pieces	5,00
Road signs (material)	pieces	5,00
Installation of steel poles	pieces	5,00
Steel poles (material)	tons	2,50
FENCES, GATES, WALLS		
Earthen wall repair	cubic meters	800,00
Clay mortar	tons	1440,00
Clat plaster	sq.meters	2000,00
Installation of gates with frames	sq.meters	5,00
LANDSCAPING / IRRIGATION		
Preparation of standard planting places for trees and shrubs with a square lump of earth of 1.0x1.0x0.6 m in size with the use of specialized machinery with black mould humus filled into each hole: up to 25%	pieces	100,00
Planting of trees and shrubs with a lump of earth sized: 1.0x1.0x0.6 m	pieces	100,00
Trees with a 2-3 year old crown, height of 1.5-3 m	pieces	20,00
Shrubs (various species), height 1.25 to 1.5 m	pieces	80,00
CONCRETE		
CONCRETE CAST IN PLACE		
Concrete cast foundations and building structures	cubic meters	180,00
MASONRY		
CONCRETE MASONRY UNITS AND BRICK MASONRY		
Structural masonry	cubic meters	180,00
METALS		
FABRICATION AND INSTALLATION OF STEEL STRUCTURES		
Observation platforms	tons	3,00
DOORS & WINDOWS		
FABRICATION AND INSTALLATION OF DOORS & WINDOWS		
Doors	sq.meters	50,00
Windows	sq.meters	50,00
Other	sq.meters	5,00
FINISHES		
INTERIOR & EXTERIOR FINISH		
Interior finish (plaster)	sq. meters	320,00
Interior finish (ceramic/porcelain tiling)	sq. meters	700,00
Exterior finish (plaster)	sq. meters	500,00
Resilient flooring	sq. meters	125,00
FURNISHINGS		
OUTDOOR SITE FURNITURE		
Application of bottoming (cushion) and leveling layers of base: of sand	cubic meters	4,00
Natural sand for construction work, medium	cubic meters	1,20
Construction of concrete foundations, volume: up to 5 cubic meters	cubic meters	1,80
Heavy concrete, class B15 (M200)	cubic meters	1,80
Installation of anchor bolts in pre-fabricated sockets with the embedment length of: up to 1 m	tons	0,60
Installation of small and lightweight structures (window sills, drains, guard railing / parapets, etc.), weighing up to 0.5 tons	pieces	0,65
Waste bins	pieces	15,00
Bench (length = 1800 mm)	pieces	50,00
MECHANICAL AND PLUMBING SYSTEMS		
BASIC ELECTRICAL MATERIALS AND METHODS		
External irrigation, water supply & sewage systems	set	1,00
Drilling and completion of water wells (incl. equipment)	set	1,00
Fresh water preparation and waste water treatment	set	1,00
Building interior mechanical and plumbing systems	set	1,00
ELECTRICAL		
BASIC ELECTRICAL		
Installation of electrical equipment (transformer stations)	pieces	1,00
rerouting the electrical supply lines	linear meters	400,00
LIGHTING		
Installation of street lighting and façade illumination	set	1,00

Activities carried out in the Chiluhor Chashma area

Works Description	Unit	Quantity
GENERAL REQUIREMENTS		
TEMPORARY FACILITIES, CONTROLS AND UTILITIES This section includes arrangement of all temporary facilities, controls and connection to utilities to carry out construction works		
Construction and maintenance of temporary facilities	set	1,00
Protection of archaeological remains, trees, existing facilities	set	1,00
SITE CONSTRUCTION		
SOIL AND RIVERBANK STABILIZATION This section includes the selective removal and subsequent disposal of the terrain surface (soil, debris, rock blocks) on the work site		
Dismantling of pavements, foundations, riverbank structures (natural stone)	cubic meters	480,00
Natural stone loading (mechanically)	tons	270,00
Natural stone unloading (mechanically)	tons	270,00
SITE PREPARATION Work under this section includes the removal of loose rock in slopes and rocky cliff.		
dismantling of buildings, removal of structures, foundations	square meters	4000,00
Dismantling of pavements and foundations (asphalt and concrete)	cubic meters	585,00
SITE CLEARING/CLEANING Work under this section pertains to the general site clearing operations and grubbing of the areas in and around the Site of all small plant material and rubbish.		
Construction waste loading (manually)	cubic meters	742,95
Construction waste unloading (manually)	cubic meters	742,95
HARDSCAPES, UNIT PAVERS, POROUS PAVING (PATHS)		
Sand	cubic meters	225,00
Application of bottoming (cushion) and leveling base layers (sand)	cubic meters	225,00
Application of bottoming (cushion) and leveling base layers (crushed stone)	cubic meters	675,00
Crushed stone, fraction size 20 to 40 mm	cubic meters	675,00
Installation of paving tiles	sq.meters	4500,00
Paving tiles	sq.meters	4500,00
Sand	cubic meters	375,00
Application of bottoming (cushion) and leveling base layers (sand)	cubic meters	375,00
Application of bottoming (cushion) and leveling base layers (crushed stone)	cubic meters	1125,00
Crushed stone, fraction size 20 to 40 mm	cubic meters	1125,00
Paving: 4-cm-thick hot-applied dense fine-grained bitumen-concrete mixes of ABC type, density of stone materials: 2.5 to 2.9 tons per cubic meters	sq.meters	7500,00
HARDSCAPES, UNIT PAVERS, POROUS PAVING (PARKING)		
Application of bottoming (cushion) and leveling layers of base: of sand	cubic meters	225,00
Sand for construction work after crushing screenings, grade 800, medium	cubic meters	675,00
Application of bottoming (cushion) and leveling layers of base: of crushed stone	cubic meters	675,00
Crushed stone made from construction-quality ballast stone, grade Dr8, fraction size 20 to 40 mm	sq.meters	4500,00
Pavement concrete mixes of ABC type, density of stone materials: 2.5 to 2.9 tons per cubic meters	sq.meters	4500,00
Road marking with 0.20 m wide thermoplastic lines: continuous	cubic meters	375,00
Marking machines	cubic meters	375,00
Installation of road signs: on steel poles	cubic meters	1125,00
Metal shields	cubic meters	1125,00
Installation of steel poles	pieces	5,00
Steel poles	tons	2,50

installation of fountains (masonry, pumps, fixtures)	pieces	2,00
FENCES, GATES, WALLS		
Manufacturing and installation of the site fence	meters	1000,00
Installation of hinged gates with erection of pillars: made of steel	sq.meters	100,00
LANDSCAPING / IRRIGATION		
Preparation of standard planting places for trees and shrubs with a square lump of earth of 1.0x1.0x0.6 m in size with the use of specialized machinery with black mould humus filled into each hole: up to 25%	pieces	700,00
Planting of trees and shrubs with a lump of earth sized: 1.0x1.0x0.6 m	pieces	700,00
Trees with a 2-3 year old crown, height of 1.5-3 m	pieces	200,00
Shrubs (various species), height 1.25 to 1.5 m	pieces	500,00
CONCRETE		
CONCRETE CAST IN PLACE		
Concrete cast foundations and building structures	cubic meters	800,00
MASONRY		
CONCRETE MASONRY UNITS AND BRICK MASONRY		
Structural masonry	cubic meters	700,00
INSTALLATION OF STONE		
Installation of retaining walls (gabions structures)	cubic meters	700,00
METALS		
FABRICATION AND INSTALLATION OF STEEL STRUCTURES		
Pedestrian bridges	tons	15,00
Observation platforms	tons	3,00
DOORS & WINDOWS		
FABRICATION AND INSTALLATION OF DOORS & WINDOWS		
Doors	sq.meters	125,00
Windows	sq.meters	125,00
Other	sq.meters	50,00
FINISHES		
INTERIOR & EXTERIOR FINISH		
Interior finish (plaster)	sq. meters	3200,00
Interior finish (ceramic/porcelain tiling)	sq. meters	2100,00
Exterior finish (plaster)	sq. meters	5000,00
Resilient flooring	sq. meters	1.250,00
FURNISHINGS		
OUTDOOR SITE FURNITURE		
Application of bottoming (cushion) and leveling layers of base: of sand	cubic meters	85,50
Natural sand for construction work, medium (m3)	cubic meters	2,50
Construction of concrete foundations, volume: up to 5 cubic meters	cubic meters	803,70
Installation of anchor bolts in pre-fabricated sockets with the embedment length of: up to 1 m	tons	0,05
Installation of small and lightweight structures (window sills, drains, guard railing / parapets, etc.), weighing up to 0.5 tons	pieces	171,00
Takhta	pieces	91,00
Bench (length = 1800 mm)	pieces	80,00
Waste bins	pieces	50,00
MECHANICAL AND PLUMBING SYSTEMS		
BASIC ELECTRICAL MATERIALS AND METHODS		
External irrigation, water supply & sewage systems	set	1,00
Fresh water preparation and waste water treatment	set	1,00
Solid waste removal (incl. waste truck)	set	1,00
Building interior mechanical and plumbing systems	set	1,00
ELECTRICAL		

BASIC ELECTRICAL		
Installation of electrical equipment (transformer stations)	pieces	2,00
LIGHTING		
Installation of street lighting and façade illumination	set	1,00

2.3 Legal framework.

The environmental management issues of this project are based on the requirements of the legislation of Tajikistan and the provisions of the “Environmental and Social Framework” of the World Bank. Environmental legislation in the Republic of Tajikistan includes various legislative acts, including the Constitution, laws and regulations of the Government of the Republic of Tajikistan, as well as International Environmental Conventions ratified by the Tajik parliament. Government Republic of Tajikistan provide the legal and social framework, maintain competition, provide public goods and services, redistribute income, correct for externalities, and stabilize the economy.

The Constitution of the Republic of Tajikistan

- Proclaims freedom of economic and entrepreneurial activity and legal protection of all types of activity, including private (Article 12);
- The rights and liberties of individual and citizen shall be protected by the Constitution, the laws of the republic, and international legal documents recognized by Tajikistan. (Article 14)
- Guarantees exclusive state ownership of land, subsoil, water, airspace, flora and fauna and other natural resources, and their effective use in the interests of all people (Article 13);
- Men and women shall have equal rights (Article 17);
- Ensures the protection of the health of all citizens and the adoption of measures to improve the environment (Article 38);
- Everyone shall be guaranteed social security in old age, in the time of sickness, invalidity and loss of ability to work, or loss of a guardian or other instances prescribed by law (Article 39);
- Everyone shall have the right to work, to choose the profession, job, work protection and social protection during the unemployment. Wages for work shall not be less than the minimum wage. (Article 35);
- Everyone shall have the right to work, to choose the profession, job, work protection and social protection during the unemployment. Wages for work shall not be less than the minimum wage. (Article 35);
- Imposes on every citizen and legal entity the responsibility for the protection of the environment, historical and cultural monuments (Article 44).

The Environmental Protection Law is the basic law governing environmental protection. The Parliament adopted the Law on June 22, 2011 (No. 485), replacing the Law on Nature Protection of the Republic of Tajikistan (No. 905, 27/12/1993), which was in force until that time, as amended (No. 30, 10/2002; No. 75 2/12 / 2002; No. 58 15/4/2004).

- Defines the main goals, principles and instruments of environmental protection in Tajikistan and prioritizes environmental values in the process of sustainable development of Tajikistan;
- Proclaims the right to a healthy environment and provides the tools to exercise this right. They also include the right to information about the environment (Article 12) and the right of the public to participate in decision-making on environmental issues (Article 13).

Detailed steps to implement the provisions of the Law are set out in the following pieces of legislation:

The Law on State Ecological Expertise (№ 818, 16/4/2011) the older version of Law No. 20 dated April 22, 2003. According to the Law, all republican and local projects, programs and implementation schemes which require the use of natural resources and / or may adversely affect the state of the environment are subject to State Environmental Expertise. This Law also defines the general principles of EIA and the powers of environmental

experts and types of environmental expertise, including State and Public Environmental Expertise.

The Law on State Ecological Expertise includes provisions on the process of conducting an Environmental Impact Assessment (EIA) in Tajikistan. Detailed procedures for the implementation of these provisions are set out in the GOT Ordinance “On the Process of Preparing and Conducting an Environmental Impact Assessment (EIA)” No. 509 of August 6, 2014, which replaced the older version of the 2006 Governmental Ordinance. The document describes the EIA procedure and defines the roles of the participants in the process, including authorized government bodies and other interested parties. The decree classifies actions into categories depending on the size of the project and the degree of expected negative impacts on the environment. Activities with the highest expected risks to the environment categorized into category I, and activities that are categorized as IV have the lowest expected risk. Category I actions require an EIA process including the preparation of a full-length EIA report and submission to the State Environmental Review Department for approval. Actions of categories II, III, IV require the preparation of a section on Environmental Protection as part of the project documentation, where environmental impacts and mitigation measures must be determined.

The Environmental Monitoring Law defines the organizational, economic and social framework for monitoring environmental protection in the country. Determines the goals, objectives, responsible parties and principles of environmental monitoring in Tajikistan. Introduces a unified system for monitoring the environment in the country and a framework for the use of information resources. Defines the responsible authorities and the framework for public participation.

Environmental Impact Assessment Process in Tajikistan. Adopted on July 18, 2017 No. 1448. A new law regulating the procedure for conducting an environmental impact assessment, taking into account the division into categories A, B, C, D, where A is a category of complex projects and D with an insignificant ecological footprint. The procedure for environmental impact assessment, adopted on November 1, 2018, No. 532, determined the division of projects into categories, as well as the procedure for conducting an EIA. According to the procedure, the documentation for the construction / reconstruction of facilities is subject to mandatory assessment of the possible environmental impact. Assignment to a hazard class is possible only on the basis of emission indicators, where this project can be classified as category B with a local effect and insignificant emissions into the atmosphere of class 4 or 5.

Environmental Monitoring Law. The law defines the organizational, legal, economic and social foundations of environmental monitoring in the country. Determines the goals, objectives, responsible persons and principles of environmental monitoring in Tajikistan. Introduces a unified system of environmental monitoring in the country and defines the rules for the use of information resources. Defines the regulatory body and framework for public participation.

Law on the protection of atmospheric air. The law was adopted in December 2012 and replaced the old version of February 1, 1996. The Law: • Provides a legislative basis for the protection of atmospheric air • Determines the goal and objectives and basic principles of atmospheric air protection • Determines the objects and subject of atmospheric air protection and provides general principles for the classification of sources of air pollution and pollutants • Defines responsibility for the regulation and management of air protection issues different levels of government. • Introduces economic mechanisms for air protection, including mandatory payments for the discharge of pollutants into the atmosphere and incentives for air protection measures. The fee for exceeding the permissible amount of pollutants has been increased 5 times. Provides regulatory requirements for establishing scientifically based air quality standards, including maximum permissible concentrations (MPCs) and discharge permits for air pollutants, as well as air protection requirements for various conditions. Any enterprise that affects the quality of atmospheric air must obtain a special permit for the emission of pollutants into the atmosphere. Includes provisions for the protection of the ozone layer and the fight against transboundary air pollution. • Provides requirements for statistics, inventory, reporting of air pollutants and monitoring of air pollution activities.

Environmental, Health and Safety Standards in Tajikistan

Framework environmental law. The Law on Environmental Protection (No. 208, 2011) states that the national environmental policy should prioritize environmental protection activities based on evidence-based principles and integrate nature management and sustainable resource use with economic development. The law defines the applicable legal principles, protected sites, and the competences and roles of the government, local

authorities, civil society organizations and individuals. The law also provides for measures to ensure public and individual rights to a safe and healthy environment and requires the creation of a joint system of environmental expertise and environmental impact assessment to make decisions about any activity with potential adverse environmental impacts. The law defines environmental emergencies and environmental disasters and prescribes the procedure for action in such situations, determines the obligations of officials and enterprises to prevent the occurrence and liquidation of consequences, as well as the obligations of persons or organizations that damage the environment or otherwise violate the law. The law establishes several types of environmental enforcement: state control, departmental control, enterprise control and public control. State control is exercised by the Committee for Environmental Protection, the State Sanitary and Epidemiological Surveillance Service of the Ministry of Health, etc. 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.

Financing of programs and projects and decisions on placement, construction or reconstruction is allowed only after a positive conclusion from the SEE is received. If these requirements are violated, the Environmental Protection Committee and / or other duly authorized control bodies may stop construction until the necessary improvements are made. SEE for investment projects is the responsibility of the Committee on Environmental Protection (CEP) and its regional offices.

Projects requiring SEE. SEE is required for the following types of projects:

- drafts of state programs, preliminary planning, pre-project and technical documentation for economic development;
- regional and sectoral development programs;
- spatial and urban planning, development and design;
- environmental programs and projects;
- construction and reconstruction of objects of various types, regardless of their own ownership;
- development of environmental quality standards and other regulatory, technological and methodological documentation regulating economic activities; and
- existing enterprises and business entities, etc.

Administrative structure of the EA. The Law on Environmental Protection states that SEE will be carried out by the State Committee for the Environment. A third-party organization can be hired to carry out the EIA, the Law of the Republic of Tajikistan "On Environmental Impact Assessment" allows this to be done.

Occupational Health and Safety Standards:

Relevant national laws include:

- Labor Code, 23 July 2016

This Code regulates labor relations and other relations directly related to them, aimed at protecting the rights and freedoms of the parties to labor relations, establishing minimum guarantees of rights and freedoms in the labor sphere.

- Law on Industrial Safety at Hazardous Facilities No. 14, 28 February 2004/2008

This Law regulates the legal, economic and social foundations for the safe operation of hazardous facilities and is aimed at preventing accidents and accidents against threats to resources and ensuring the preparedness of organizations operating hazardous production facilities for the localization and implementation of these accidents, guaranteed compensation for losses, accidents of individuals and legal entities, the environment and the state (as amended by the Law of the Republic of Tajikistan dated 02.01.2020, No. 1682).

- Health Code, May 30, 2017

This Code is regulated by public relations in the field of health care and is aimed at the constitutional rights of citizens and health protection.

Workers' health and safety standards are agreed between trade unions, employers' associations responsible for implementing measures, and the Ministry of Finance (Employer), which are responsible for overseeing and enforcing compliance.

Tajikistan's only regulation on asbestos is the regional multi-state agreement of the Interstate Standard GOST 12871-93, signed by Tajikistan, which regulates interstate trade and transportation of chrysotile asbestos. Asbestos-containing products are legally available, for example pipes and roofing material are imported from Russia and China, and the Dushanbe cement plant resumed production of corrugated asbestos-cement sheets in September 2013¹¹. In any case, the assessment will be based on international agreements and building codes, where the use of asbestos-containing substances will be prohibited.

Environmental permits are issued and monitored on behalf of the Government by the Committee for Environmental Protection or the Hukumat regulatory authorities, depending on the level of impact. The state

regulator is responsible for high-impact enterprises, and the corresponding department at the hukumat level is responsible for medium and low-risk enterprises.

Regardless of the form of ownership, all companies that produce, store and process waste on their territory must obtain a waste management license. In addition, enterprises must coordinate the volume of waste production with government agencies and receive a waste limit.

Disposal of mercury lamps

- The procedure for collecting used mercury lamps from the population, legal entities, individual entrepreneurs, storage, transportation, disposal, 2011.
- The procedures establish the rules for the management of waste and decommissioned fluorescent energy-saving and other mercury lamps (hereinafter referred to as mercury lamps), improper collection, storage, use, shutdown, transportation and placement, which can lead to harm to the life, health of citizens, animals, plants and the environment.
- Broken and undamaged lamps and lamp debris (broken lamps, fragments and phosphors with broken lamps, paper used to remove mercury contamination, pins, tissue, duct tape, paper towel and other materials) are considered mercury waste, which implies the establishment of sanitary procedures and requirements separate waste collection.

A number of legal acts establish responsibility for violations of environmental legislation and assign responsibility for the performance of duties to various state bodies. In particular, the 1998 Code of Administrative Violations establishes administrative liability for organizations, their officials and individuals for a number of violations, from negligent handling of land to violations of water use or water protection rules, or non-compliance with state environmental expertise. The most common administrative sanction is a fine of up to 10 indicators for settlements for individuals and up to 15 indicators for payments to employees of organizations. The 1998 Criminal Code covers crimes against environmental safety and the environment, such as violations of environmental safety at work, poaching and damage to land, as well as violations of the rules for the protection and use of underground resources. The maximum fine is up to 2,000 calculation rates, and the maximum sentence is up to eight years in prison. Ensuring and adhering to EA is the primary responsibility of the Environmental Inspectors of the Committee on the Environment.

Table 1 includes an overview of the National Standards and Regulations applicable to this Project

National Standards and Regulations Relevant to the Project

#	Title - National standards - GOST
1.	31431—2011. Environment protection. Air. Maximum permissible emissions (MPE). 29
2.	31434—2011 Protection of nature. Air. Determination of efficiency parameters of dust collection systems. November 29, 2011
3.	IEC 61241-0—2011 Electrical equipment used in areas containing flammable dust. Part 0. General requirements. November 29, 2011
4.	GOST 17.0.0.01-76 (STSEV 1364-78) (as amended in 1987) System of standards for environmental protection and improvement of the use of natural resources. General Provisions
5.	General provisions GOST 17.0.0.04-80 (1998) Protection of nature. Environmental passports (certificates) of industrial facilities. General Provisions
6.	GOST RISO14001-98 Environmental management systems. Requirements and rules.
7.	GOST 17.0.0.02-79 (1980) Protection of nature. Regulations on the metrological control of air pollution, water surface and soil.
8.	GOST 17.1.1.01-77 (STSEV 3544-82) Use and protection of water. General terminology and definitions.
9.	GOST 17.2.1.01- 76 Classification of emissions (content).
10.	GOST 12.1.014-84 (1996) SSBT. Air of working rooms. Methodology for measuring the concentration of pollutants using indicator tubes.

#	Title - National standards - GOST
11.	GOST 12.1.005-88 (1991) SSBT. General sanitary and hygienic requirements for air in working rooms.
12.	GOST 17.2.2.05-97 Standards and methods for measuring emissions containing exhaust diesel gases from the use of tractors and mechanized agricultural machinery-propelled agricultural machines.
13.	GOST 21393-75 Diesel vehicles. Density of exhaust gases. Norms and methods of measurement.
14.	GOST 17.2.2.03-77 Concentration of carbon monoxide in the exhaust of cars with a carburetor engine. Measurement standards and methodology.
15.	GOST 17.2.2.03-87 Standards and methods for measuring carbon monoxide in the exhaust gases of cars with a carburetor engine.
16.	GOST 17.4.2.01-81 List of parameters of sanitary condition.
17.	GOST 17.4.1.02-83 Classification of chemicals for the monitoring of infections.
18.	GOST 12.1.003-83 (1991) SSBT. Noises. General safety requirements.
19.	GOST 12.1.023-80 (1996) SSBT. Noises. Methods for determining the threshold noise levels for stationary equipment.
20.	GOST 12.1.029-80 (1996) SSBT. Means and methods of noise protection. Classification.
21.	GOST 12.1.036-81 (1996) SSBT. Noises. Acceptable noise levels inside residential and public buildings.
22.	GOST 12.1.007-76 (1999) SSBT. Harmful substances. Classification and general safety requirements.
23.	GOST 12.4.119-82 SSBT. Respiratory PPE. Methods for assessing the protective properties of aerosols.
24.	GOST 12.4.125-83 (1985) SSBT. Equipment for collective protection against mechanical factors. Classification.
Sanitary norms and regulations (SNaRs)	
25.	SNaRs 2.1.4.559-96 Drinking water. Hygienic requirements for water quality from central drinking water supply systems. Quality control.
26.	SN 2.2.4 / 2.1.8.562-96 Noises in work premises, inside residential and public premises and in residential areas.

2.4 Project location

All historical recreational facilities are located in the Khatlon region of Tajikistan. The Khulbuk fortress is located in the Vose region, the Khoja Mashhad madrasah is located in the Shaartuz village, the Chiluchor Chashma spring is located in the Shaartuz region (Figure 1).



Figure 1. Objects of construction / reconstruction (Khulbuk fortress, Khoja Mashhad madrasah, Chiluchor Chashma spring).

Photos and examples of conceptual landscaping schemes are shown in Figures 2-7.



Figure 2. Hulbuk Fortress



Figure 3. Fortress Khoja Mashhad



Figure 4. Chilu Chor Chashma



Figure 5. An example of a conceptual scheme for the improvement of the territory of Chilu Chor Chashma



Figure 6. An example of a conceptual scheme for the improvement of the territory of Khoja Mashhad

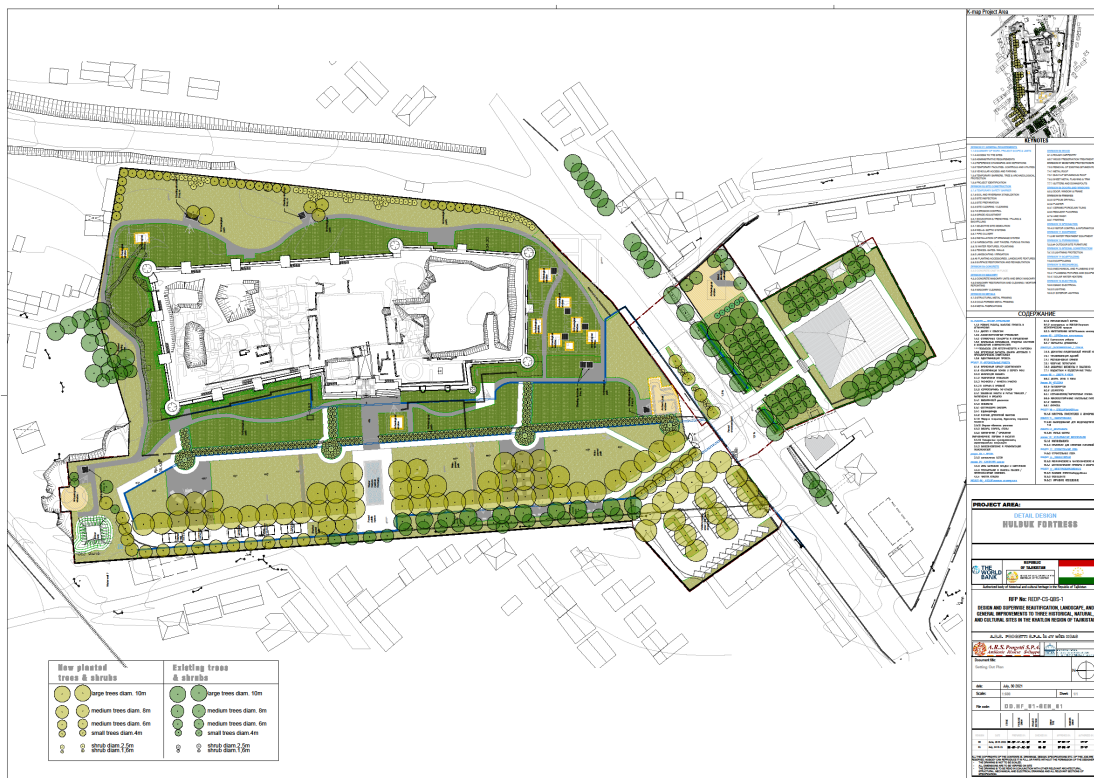


Figure 7. An example of a conceptual scheme for the improvement of the Khulbuk territory

3. Environmental and Social Baseline Data

3.1. General natural, geographical and social conditions

The project will be implemented for three cultural, historical and recreational facilities (see above subsection 2.4., Figure 1), located in the Khatlon region.

Khatlon region is located in the southwestern part of the Republic of Tajikistan and is the most populous of the four administrative regions. It is located in the southwest of the country, between the Gissar Range in the north and the Panj River in the south, and borders Afghanistan in the southeast and Uzbekistan in the west. The capital of the region is the city of Bokhtar, formerly known as Kurgan-Tyube. During the Soviet period, Khatlon region was divided into Kurgan-Tyubinsk (western part of Khatlon) and Kulyab (eastern part of Khatlon) regions. In 1992, both regions were merged into the Khatlon region. Khatlon region covers an area of 24,800 km² and consists of 24 districts - 14 located in the western part of Khatlon region and 10 in the eastern part of Khatlon region. The total population of the Khatlon region in 2018 was 3,198,500 people. The population of Khatlon region is mainly engaged in agriculture.

Natural-geographical and socio-economic conditions of individual objects.

General characteristics of the region.

The climate in the central and southwestern regions of Tajikistan, selected by the Project, is characterized as a climate with rather hot summers and warm winters (Figure 8). The cold period lasts 90-120 days, the warm period - 275-235 days. 75-85% of the annual rainfall occurs between December and May. The climate may have an impact on the construction season in the project areas, which may be limited between February and December.

Climate change is likely to increase risks and pressures on economic development, human well-being and the environment in Tajikistan. Recent droughts and extreme weather conditions have highlighted existing deficiencies in climate change adaptation in key sectors, such as the inability of hydropower facilities to cope with

climate-related risks (severe winter 2008). Understanding current vulnerability to extreme events is a starting point for assessing the future impacts of increased climate variability and climate change in Tajikistan. As shown in Figure 8, for example, there is a risk of glacial lake outburst and increased flooding and landslides. In this case, not only existing areas may be exposed to risks, but also areas that were not previously vulnerable.

Water resources. Most of the rivers of Tajikistan lie within the Amu Darya basin, in the territory from the Gissar valley to the Eastern Pamir. The rest of the rivers are located within the Zeravshan and Syr-Darya basins (Figure 9).

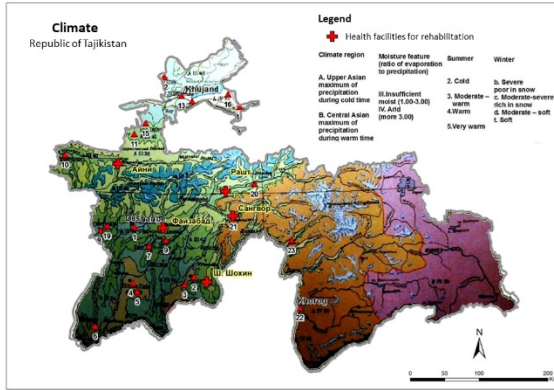


Figure 8. Climate map of Tajikistan .

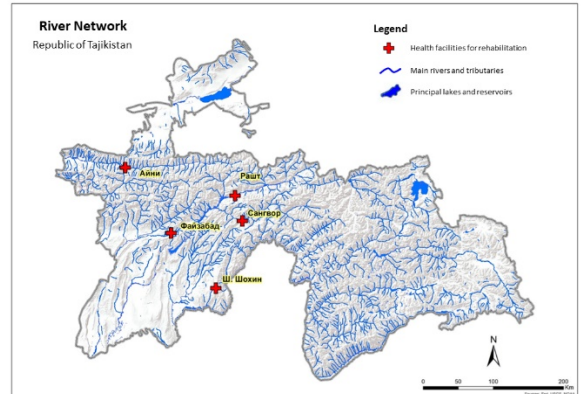


Figure 9. River network of Tajikistan

Soil cover. The territory of the study area is characterized by aridity, while the soils are favorable for agricultural use through irrigation and the use of agrochemicals.

Soil erosion is a major environmental problem throughout the Republic of Tajikistan due to seismic activity, steep slopes, fragility of soils and human activities, namely inadequate grazing of livestock, removal of protective vegetation cover and poor water use / water management system.

There are three main types of soils in the study area (Figure 11):

- The gray soils of the valley of uncultivated fields;
- Brown soils of the middle mountain belts;
- Highland soils.

The results of agrochemical analysis of soil samples from the studied areas showed that the soils have a low and medium content of mineral substances. To ensure and maintain soil fertility, it is recommended to use mineral and organic fertilizers.

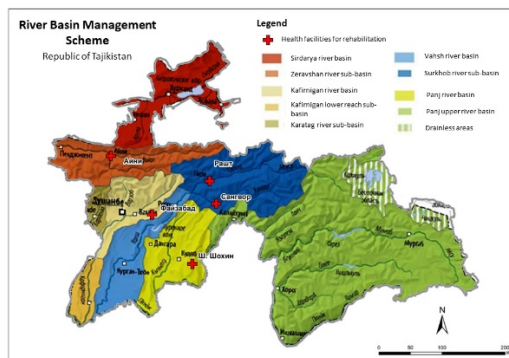


Figure 10. River basins of Tajikistan

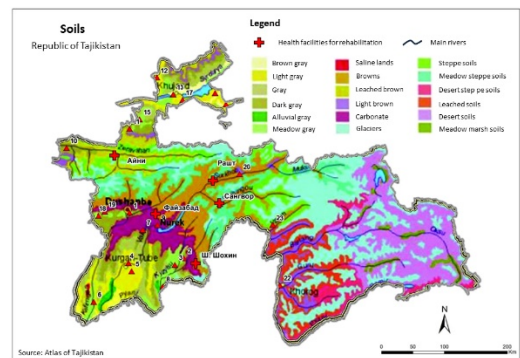


Figure 11. Soil map of Tajikistan

Seismicity. Three main seismic zones of Tajikistan with 7, 8 and 9 points of seismic intensity on the MSL-64 scale. In each of these zones, earthquakes of the indicated intensity level are possible. Most of the southern regions are located in zones of seismicity of 7 and 8 points (Figure 12).

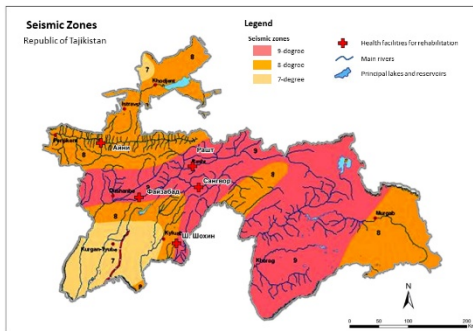


Figure 12. Major seismic regions of Tajikistan

Air quality. Air quality is one of the main environmental problems in the industrial regions and cities of Tajikistan. The main persistent sources of air pollution in Tajikistan are mining, metallurgy, chemical production, construction, mechanical processing, light industry, heat and power generation, and agriculture. However, in general, no industrial source of air pollution is located within the cities covered by the subproject.

Historical information about the objects of the project

The Khodja Mashkhad mausoleum, Khatlon region, Shaartuz district, Talbak Sadridin jamoat

The monument to Madrasah of Khoja Mashhad consists of two domed buildings standing next to each other, which are connected by a vaulted passage. Research, which began in the 50s of the twentieth century, showed that these two buildings were erected at different times: the first - in the 9-10th centuries, the second - later - in the 11-12th centuries. They were built of baked bricks, which allowed them to survive to this day.

Buildings, with external similarity, differ not only in the time of construction, but also in different architectural details. The first, the eastern domed building, measuring 11x11 meters and 13 meters high, is distinguished by a special masonry - rows of horizontal bricks are "broken" by inserts of vertical bricks. It contains flooded graves left after the burial of those killed as a result of the Mongol invasion.

The second, western building is distinguished by a wide variety of unique patterns of brickwork in the form of a "herringbone". Its dimensions are 10.5x10.5 meters and its height is 14 meters. It contains the so-called mehrob - a niche in the inner wall of the mosque, indicating the direction to Mecca. Obviously, there was a madrasah and services were held.

Under the dome itself there is a belt of tiles with remnants of Arabic script - these are, according to the caretaker, a kind of visual rosary, along which worshipers could look. Both buildings have circular openings at the top to allow light to enter the rooms.

Both the domes and the vaulted passage between the two domed buildings are unique in their way. They were erected without auxiliary elements, the construction was carried out immediately from 4 corners at the same time, with steps of bricks, which were laid with an overlap one above the other, eventually forming a thin, only one brick in size, vault.

Chiluchor chashma, Khatlon region, Nosiri Khusrav district, Istikloliyat jamoat

Chiluchor Chashma ("Forty-four springs") - this is the name of a place 12 km from the village of Shaartuz, very famous throughout Tajikistan and in neighboring Uzbekistan.

Here, right at the foot of a small hill, in the middle of a hot desert, five large water sources gush out of the ground, breaking up into 39 small ones. All springs, merging, form a channel 12-13 m wide, in which a large number of fish live.

The historian Abu Sad al-Samani (1113-1166) in the XII century reports about Chiluchorchashma, without naming his name, as "a well-known source in Kabodiyon" with healing water. This very large source has survived to the present day. It is located in the Beshkent Valley, which in the past (before the irrigation works of the Soviet era) was a hot, lifeless steppe.

Khulbuk Fortress Republic of Tajikistan, Khatlon region, Vose district, Guliston jamoat

Khulbuk is a large historical complex in Tajikistan, which is located near the Kurban-Shaid village of the Vose district of the Khatlon region. The complex includes the Ruler's Palace, the citadel and the surviving parts of

the settlement of the 9th-12th centuries. At the end of the last century, Hulbuk was nominated by UNESCO as a candidate for the title of an object of World Historical Value and Heritage.

Khulbuk is an archaeological complex in the village of Mekhrobod, Vose district, Khatlon region, Tajikistan. It is a medieval fortress, a ruler's palace and fragments of an ancient settlement. The citadel has the shape of a rectangle 50 × 150 m and consists of two parts. The southern one (50x50 m) is surrounded by 15-meter walls, the northern one is larger in area, but its walls are 10 m lower. The ruler's palace is located inside the citadel.

3.1.1. Features of the object Hulbuk Fortress and design recommendations

Biodiversity. The territories adjacent to the reconstruction objects are inhabited by foxes, hares, eagles, small rodents, etc. According to information provided by the local department of environmental protection, there are no rare and endangered species on the site. The local rivers are dominated by a species belonging to the carp family (Schizothorax) (Marinka). Four types of fish are included in the Red Book of Tajikistan. None of these species live in the rivers of the project area; no impact on aquatic ichthyic fauna is expected.

The main massifs of plantations in the adjacent territory are marked on the western side of the citadel (along the frontal part of the citadel, from south to north). Green spaces are represented by various types of fruit, cultivated and horticultural plants (trees, shrubs), planted in a row along the northern part along the fence, as well as wild herbs typical for this region. On the east side, along the outer fence planted in a row platycladus (*Platycladus orientalis* (L.) Franco), known as a more eastern thuja (*Thuja orientalis* L.). On the north side (the side of the citadel) there is a grove with unidentified types of woody vegetation. For archaeological research, the area in the immediate vicinity of the fortress is often mown. According to the director of the archaeological complex "Khulbuk" - Abdullodzhon Khodjaev, the initial planting and landscaping of the territory was carried out in 2005, then gradually other types of plants were planted for landscaping and landscaping the adjacent territory. Various types of wild and weed grasses spontaneously grow around the citadel and inside (courtyard).

Young seedlings of apricots, flat plants, various types of roses have also been planted and cultivated on the territory. Basically, gardening activities began in 2005 and in general, plants are grown on the territory without accounting, so their number is difficult to calculate at the moment. The species in the Red Data Book are not marked.

Plant care is complicated by the lack of irrigation water, which significantly affects the natural vegetation of plants. Weed control is carried out on an ongoing basis. Restoration of water supply on the site is required

Specially protected areas are not adjacent to the designed facility.

Studies of soil and water samples were carried out. Sampling was carried out in strict accordance with the methodology of the laboratory of the State Service for Sanitary and Epidemiological Supervision of the State Institution Center for Sanitary and Epidemiological Expertise and Control of Transport and Borders (for water), as well as the Institute of Soil Science of the Academy of Sciences of the Republic of Tajikistan (for soil).

The final conclusion on the analysis of the soil can be made as "soils, unsuitable for agriculture, due to the low level of fertility." In the case of landscape planning and planting additional green spaces, additional reclamation work and the introduction of organic fertilizers are required.

Water analyzes at the site showed, in general, the suitability of water use for drinking needs.

Air quality

The site project is located in a populated area. The area has relatively low industrial production, which has an impact on air quality. One of the main sources of air pollution in the region is the combustion of produced fuel for space heating, cooking and power generation in urban areas, road transport, etc. The increase in the number of people receiving electricity from Tajikistan's large hydropower plants has also contributed to a decrease in air pollution. Another source of pollution is the movement of construction vehicles and vehicles for the delivery of construction materials to the territory of the complex. These emissions can be divided into two categories: internal combustion engines and dust from construction machinery.

Near the object there is a highway connecting Dushanbe and Kulyab, which presents certain difficulties for the object. Constant vibration will destroy the object.

The location of the object inside residential complexes raises the question of the need to limit noise during design work.

From the point of view of technical devices, the fortress in ancient times represented a unique complex of technologies for the sewerage system, drainage system, waste collection, and heating. Currently, there is an acute shortage of all of the above components. Waste collection is carried out without appropriate containers, while the land allocated for waste collection spoils the overall aesthetic appearance and litters the territory. In the northern part of the Khulbuk fortress, a groundwater pumping station was built at the expense of international assistance, but this station does not function due to lack of proper maintenance and financial resources. The management of

the complex asks to restore the operation of the well and the transformer to provide the territory with irrigation water. We note that according to the data received from the specialists of the complex, part of the territory is approximately 1 meter higher than the level of the ancient part of the foundation of the fortress, which leads to erosion of the foundation and erosion of the architectural structure. It is proposed to reduce the slope with waste and irrigation water discharge in the direction opposite to the fortress. Planting turf and moisture-loving plants is especially dangerous. It is proposed to create small wastewater discharge collectors along the edges of the complex with the necessary slope for drainage. To reduce water consumption at the facility, it is proposed to improve the territory with the help of point landings and the use of paving slabs.

The arrangement of toilets is extremely important in the design of the improvement of the complex. Improvement is needed taking into account the installation of autonomous sewers, in which sewage drains are cleaned in air-tanks. The discharged water does not need to be further purified, it is sent directly into the reservoir or used for technical purposes. This is achieved thanks to aerobic treatment technology.

Another problem is the division of the complex, consisting of the architectural part of the fortress and the museum, by the A235 highway. More than 1000 large and small cars pass through it every day. Noise, especially vibration, gradually negatively affects the state of the architectural building, and is also a limitation for the unification of the complex into a single infrastructure. If the relocation of the road is not cost-effective, then it is necessary to install noise-reflecting screens.



Figure 13. Road A235 separating the Hulbuk fortress and the museum

Nosiri Khusrav - 9.57 HE, Khulbuk Fortress - 4.18 HE, Khoja Mashkhad - this land belongs to the category of a cemetery and the procedure for the allocation of this land into a separate plot is currently taking place, documents are being prepared

3.1.2. Features of the object Madrasah Khoja Mashhad and design recommendations

Biodiversity. The fauna of the environs of the Shaartuz region is represented by a large number of species living in desert areas, which is typical for this region. However, according to information provided by the local department of environmental protection, there are no rare and endangered species on the site.

The flora in the adjacent territory is represented mainly by various types of fruit and ornamental plants (trees, shrubs). The main abundance of fruit trees is observed along drainage and irrigation ditches, along the periphery, which, according to the rangers, is usually used as field boundaries.

In the center from the gate to the madrasah complex (about <100 meters), there are densely planted cultural and ornamental plants, such as mulberries, apricots, peaches, cherries, golden currant bushes, bushes of various types of roses, Japanese spindle tree, common privet, etc.

Also, on the site, there is an increase in herbs and various vegetable crops are grown in a territory free from a tree-shrub zone, such as pumpkin, corn, tomatoes, salads, etc.

Water stagnation is observed in some areas of the territory (western part, to the left of the madrasah complex), as evidenced by the abundant thickets of common reed.

In the area around the madrasah / mausoleum building, behind it and in the cemetery, there is a spontaneous growth of such herbs as wormwood, camel thorn, mesquite (prosopis). Abundant thickets of common reed are observed, which characterizes the stagnation of water in this area of the territory.

It should be especially noted that on the territory of the madrasah there is one large tree of the oriental plane tree (*Platanus orientalis*), planted perhaps 100 years ago (or even earlier, according to the caretaker). The height

of the tree is more than 15-20 m, and in diameter is 110-120 cm at a height of 0.5 m from the base of the trunk. This tree has a cultural and historical significance and is a natural monument. PA "Peshsaf" recommends keeping it during the reconstruction of the area.



Figure 14. Platan tree in the territory of Khoja Mashhad (*Platanus orientalis*): general view (left), near the trunk of a tree (right)

There are a lot of young seedlings of golden currant bushes (> 30), as well as a small number of young seedlings of some coniferous and fruit trees. Saline plants, which are constantly being fought, are a particular problem.

Specially protected areas are not adjacent to the designed facility. The nearest territory of the SPNA "Tigrovaya Balka" ("Tiger Hollow") is located about 10-15 km from the borders of the district, but it does not have a direct exit.

The result of an agrochemical analysis of soil samples from the Shaartuz region, found that the soils have a low and medium content of mineral substances. To ensure and maintain soil fertility, it is recommended to use mineral and organic fertilizers.

Studies of a water sample in terms of physicochemical, organoleptic and bacteriological indicators comply with the requirements of SPN 2.1.4.004.07.

The work carried out on the reconstruction of Khoja Mashhad in the early 2010s led to more disastrous consequences - leakage of a part of the ceiling of the complex, a slow process of erosion of the soil and clay floor, the foundation of the structure, as well as raising salt from the ground. On the front part of the courtyard, there are several (up to 25 burials - possibly more, since some burials could have disappeared) burials that have relatives. An oral conversation with relatives showed that everyone agrees to the transfer of burials to the backyard closer to the site newly designated for the cemetery, except for one burial of a local scientist. Part of the territory is used for agricultural purposes (garden).

A special procedure related to the reburial of the remains is assigned to the executing company. The main issue related to the reburial of remains is the actual written consent of the relatives.

There is a need to move the garden, as well as to cut down some of the barren trees. To solve these problems (cemetery and garden), it is necessary to develop a resettlement plan according to the World Bank ESS 5.

The development of the RAP plan is the responsibility of the executing company.

There is no sewerage system in Khoja Mashhad. There are no toilets. Wastewater poses a threat to flooding the area. There is no waste generation and collection system. It also requires the creation of a water supply system for the complex based on the installation of a submersible pump with mechanical water purification, the creation of a toilet based on a septic tank, the cleaning of the existing collector and drainage system to lower the groundwater level.

The arrangement of toilets is extremely important in the design of the improvement of the complex. It is necessary to install autonomous treatment facilities based on aerobic decomposition.

Access to the complex is extremely limited for two reasons - the lack of signposts on the road, starting with the fork in the road in Shaartuz, ending with the quality of the road in the makhalla itself, where the historical complex is located. This restriction can significantly affect the access of visitors and tourists to the historical site. The research team sees the need to indicate in the design, the installation of signs, as well as the rehabilitation

of a part of the road from the entrance to the jamoat to the historical site. It also requires the transfer of a small irrigation ditch, which flows through the territory of the historical complex to another place.

The relocation of residential properties on the territory of the proposed restoration of the territory is not required, except for the demolition of the old toilet, which blocks access to the complex from the north side.

There is a surplus of male labor force at the site of the site due to migration restrictions. It is necessary to envisage their involvement as a specialized labor force to improve the socio-economic situation of families located near the territory, and to reduce potential conflicts with the local population during the period of work. There is also a need to train personnel on the basis of local school personnel as guides for tourists in the national, English and Russian languages. It is also necessary to consider the issue of involving the local population in the process of creating commercial projects (start-ups) for the development of local traditional crafts, the products of which are in demand among tourists. Ideas from the local population: the creation of a workshop for weavers, for the revival of workshops for working with wool, for working with clay and leather, as well as with metal.

The lack of parking in the immediate vicinity of the location of the object may become an obstacle to the access of cars. There is a small section of road with limited traffic behind the outer wall of the property due to an old toilet. The demolition of the toilet may open up the part of the road that connects the two streets. We see the need to use this site for the improvement of the parking lot and its inclusion in the design of the project.

3.1.3. Features of the object Chiluchor Chashma spring and design recommendations

The Chilu Chor Chashma complex is a place of recreation for the population of the Kabodien, Nosiri Khusrav and Shaartuz districts. The place has a spring of clean water. Water samples were taken to determine the purity of drinking water. The object is located on the right bank of Kafirigan, 12 kilometers west of Shaartuz, on the territory of the Istiklol jamoat, in Nosiri Khusrav district of Khatlon region. One of the most wonderful freshwater springs. From the foot of a small hill, five large springs gush out, which split into 39 smaller ones. The water of the springs forms a channel 12-13 meters wide, which is inhabited by "sacred" fish (various species of the Marinka genus), as well as trout. The source is known to the residents of Tajikistan and neighboring Uzbekistan, and they often come here in the summer. Those who visit the spring pray, bathe, bathe (the canal is a bathing place for men and a separate closed area for women) and offer sacrifices. Water from 17 springs is considered healing. Plane trees and poplars grow on the territory of the spring, there is a large orchard. Above the source there is a small hill with a small mausoleum, an object of veneration for Muslims. According to local legends, a saint by the name of Kambar Bobo is buried in it, who was Ali's equerry (599-661) and looked after his mule Duldul. Nearby are the graves of four more unknown saints. In Soviet times, an inter-collective farm rest house for cotton growers and milkmaids was organized on the site of the mazar.

Biodiversity. The area of the site is about 15 hectares; the object is a place of recreation for local residents, visiting guests and tourists. On this site, due to the accumulation of spring water, a canal is formed, 10 to 12 meters wide and up to 400-500 meters long, which provides the basis for life in this region. Irrigated arable land is located in the lower part of the canal. This channel is inhabited by fish - marinka, barbel, from reptiles - water snakes, and downstream representatives of amphibians - lake frog. Old plane trees and willows grow near the springs and banks of the canal.

A garden has been created on this territory, where plane trees, willows, weeping willows, apricots, grapes, peaches and other types of trees grow. These trees are the habitat of birds of the order of predators: owls, doves (little turtledove), passerines (paradise flycatcher, gray flycatcher, oriole, black crow, etc.).

Birds such as the rock dove, little turtledove, field sparrow, barn swallow, red-lumped swallow, etc. nest in the buildings of this territory.

In the western part of Chilu Chor Chashma there are settlements, the population of which is engaged in gardening and vegetable growing, their products are a source of food for animals and birds. Directly on the Chilu Chor Chashma site, there are no fauna representatives that can be of potential value to the country. There are no animals listed in the Red Data Book of the country, as well as in the international Red Data Book.

The area is characterized by a humid environment and is characterized by the presence of rather large and old trees, because plane trees (*Platanus orientalis*), willows (*Salix* spp.) and mulberries (*Morus* spp.), which are only cultural and aesthetic in nature, but have no historical significance.

Newly planted junipers (*Juniperus* spp.) And rose bushes (*Rosa* spp.) Can also be found in the area of the springs.

Memorial trees, for example, plane trees on the territory of Chilu Chor Chashma, must be preserved after analyzing the sanitary condition of the trees, since they have cultural and historical value as natural monuments. In

addition, the specificity of the local climate requires planting or preserving large deciduous trees, since their wide crown and foliage provide the necessary shade and protection from the heat in the hot season.

Specially protected areas are not adjacent to the designed facility. The nearest territory of the SPNA "Tigrovaya Balka" is located about 20-25 km from the borders of the district, but has no direct access.

The result of an agrochemical analysis of soil samples from the Nosiri Khusrav region, found that the soils have a low and medium content of mineral substances. To ensure and maintain soil fertility, it is recommended to use mineral and organic fertilizers.

Water analyzes at the site showed, in general, the suitability of water use for drinking needs. Studies of a water sample in terms of physicochemical, organoleptic and bacteriological indicators comply with the requirements of SPN 2.1.4.004.07.

One of the main sources of air pollution in the region is the combustion of produced fuel for space heating, cooking and power generation in urban areas, road transport, etc.

The peculiarity of the complex is the presence of a fresh water source, which is used by the inhabitants for sacred water. The spring waters are constantly littered due to the large influx of tourists and vacationers. During the season, their number can reach up to 0.3 million people. Littering of water sources occurs downstream of the spring. This leads to a load on the collector-drainage system, pollution of the source waters, which are used by local residents as drinking water.

There is no sewerage system on the territory of the Chilu Chor Chashma complex. There are no toilets. The arrangement of toilets is extremely important in the design of the improvement of the complex. It is necessary to install autonomous treatment facilities based on aerobic decomposition. In this case, the treated water can be sent for irrigation or used for technical purposes.

The biggest problem of the complex is access roads and an uncomfortable parking lot. 100-150 meters of roads require complete rehabilitation. Entry must be controlled. Improvement of the car park for passenger and route transport should be provided. There is a need to set up special points for the sale of commercial goods, as well as souvenirs.

On the territory of the complex itself, there is a need to limit swimming in the spring throughout the Chilu Chor Chashma territory. This is due to a number of factors, such as preserving fish, preventing littering of the spring water downstream (requires the installation of trapping nets for waste), and limiting water intake (alternatively, selling water in special bottled containers with purification on a commercial basis). As an alternative to using the waters of the spring - the construction of a small water park or swimming pool with the calculation of up to 5,000 visitors, which will create up to 200-500 jobs during the season, taking into account the development of entrepreneurship and folk art. It is also necessary to provide for the construction of a prayer house.

Rehabilitation of the road is required, which leads to the Kambar Bobo mausoleum and the tombs of the saints.

Involving the local population in business development is not a difficult process, since most businessmen live off this complex. It is necessary to pay attention to the possibility of folk handicrafts entering the goods market on the territory of this complex. There are people who are interested in receiving grants for the development of start-ups based on weaving, felt, pottery, as well as the development of iron processing.

The presence of asbestos-cement roofing materials in some existing buildings of the Chilu Chor Chashma complex is a problem (mosque building). Builders can be exposed to asbestos fibers when modifying, repairing or replacing a roof. The project team will design the restoration work to avoid disturbances and the removal of the asbestos roof. If such an activity is proposed, confirmation of the preliminary WB plan for the implementation of measures to ensure occupational health and safety in a situation with asbestos will be received prior to the start of construction.

The proposed restoration works for historic sites will not adversely affect people and communal lands, structures and facilities, as construction work will be carried out within the existing boundaries.

The negative impact on the environment will be associated with noise pollution during construction works, transportation of construction materials to the site, waste disposal and inconvenience to neighboring communities due to increased traffic due to new construction works. The constant movement of vehicles carrying construction materials will lead to increased dust and noise levels during construction. During construction work, traffic will increase slightly. An effective traffic management and accident prevention plan should be prepared by the contracted construction company based on the developed ESMP plan.

Construction work may require a temporary accommodation and accommodation camp for workers and a parking space for vehicles and heavy equipment. There is no special land acquisition, the land will temporarily be used for the living of workers or a company rents premises from local residents. Alteranitovy can serve as the hiring of working personnel from the local population. The construction company will have to develop an action plan to ensure health and safety at the place of accommodation and residence.

During construction work, it is assumed that the access of unauthorized persons to all three objects is completely limited to prevent injury or accidental death of persons or property of citizens. The construction company will be obliged to take all necessary measures to restrict entry to the territory by enclosing the construction site with a fence and security.

Accumulation points and waste disposal must be established during construction work. Any hazardous materials will be collected and transported to the agreed places in accordance with the national legislation of Tajikistan on environmental protection (Law of the Republic of Tajikistan "On Production and Consumption Waste." construction.

4. Environmental and social impact

The project's environmental risk was initially evaluated as substantial due to four factors. First, project activities are planned in remote and potentially fragile areas. Second, the project focuses on tourism, which will require interacting with and protecting Tajikistan's rich cultural heritage. Third, the project will involve many small works. Finally, the state stakeholders have limited capacity in understanding and applying the World Bank's Environmental and Social Framework (ESF) and relevant Standards. The nature of the proposed works and associated environmental risks in themselves do not warrant a rating of substantial. The PIC has prepared the Environmental and Social Management Framework (ESMF), which provides mechanisms to mitigate environmental risks. Social risks are Substantial due to the fragility in the area. The fragility could make it difficult for the project to reach and work with beneficiaries, especially poor and vulnerable populations. Weak integration of youth and women and their participation in the institutions and limited prospects for employment compound the risks due to fragility. Further, because the project interventions will be based on competitive grants, it could be difficult for poor farmers in the interior rural areas to participate and realize the benefits. The proposed ESMF also suggests mitigation measures to address social risks.

Environmental and social impact assessments and related risks were assessed using World Bank environmental and social standards. For this project are applicable as the main ESIA 1) Assessment and management of environmental and social risks and impacts, and ESIA 10) Stakeholder engagement and information disclosure. As additional: ESS 2) Workers and working conditions; ESS 3) Rational use of resources, pollution prevention and management; ESS 4) Protection of health and safety of the population; ESS 5) Acquisition of land, restriction of land use rights and involuntary resettlement; ESS 6) Biodiversity Conservation and Sustainable Management of Living Natural Resources; ESS 8) Cultural heritage; ESS 7 and 9 are not applicable for this project.

ESIA1, Assessment and Management of Environmental and Social Risks and Impacts

General risks:

Construction phase:

- Air quality, incl. dustiness;
- Water quality;
- Soil quality;

Operation stage:

- Emergencies, including earthquakes, flooding, fire and other emergencies

In addition to the general risks listed, in the course of the work, such risks and adverse effects are expected as:

For the Hubluk object:

- Flooding;
- Pedestrian and Cyclist Safety;

For the historical complex Khoja Mashhad:

- Loss of a natural monument (plane tree);
- Potential epidemiological hazard;
- Decline in the well-being of some citizens

For the Chiluchor Chashma object:

- Loss of natural monuments (plane trees);
- Loss of land use rights;
- Landscape change;
- Parking lot creation

ESIA 10, Stakeholder Engagement and Disclosure

Potential conflicts with the local population can arise when social guarantees and obligations are violated. In order to reduce potential problems, individuals and groups likely to be affected (direct beneficiaries) have been identified. They include: local formal and informal authorities, women, youth, traders, transporters, tour operators, tour guides, home stay providers, hotels, transporters, cultural NGOs, and potential tourists. International agencies like UNESCO and international vendors also figure in the stakeholder canvass. Given the highly diverse stakeholder profile and that their expectations and orientation as well as capacity to interface with the project are different, a Stakeholder Engagement Plan (SEP) has been developed for the project. This SEP has enabled the project to identify elaborately different stakeholders and provide an approach towards reaching each of the sub groups. SEP also identifies impediments to reaching out to stakeholders as well as reflects / builds capacity of the client in engaging with stakeholders. Results of the Social Assessment, especially, on the impacts likely to occur as a result of the project interventions as well as the institutional analysis, has also been made use of in defining the agenda for stakeholder engagement and the institutional responsibilities during project implementation. The site-specific SEPs for each of three sites under consideration will be prepared and disclosed simultaneously with the site-specific ESMPs. These SEPs will be updated from time to time as deemed appropriate. The client has developed and put in place a Grievance Redress Mechanism (GRM) to enable stakeholders air their concerns / comments / suggestions, if any. This GRM will be applicable for all project sites.

ESS2, Workers and working conditions

Construction phase:

- Danger of accidents of engineering structures, including flooding, fire and other emergencies;
- Violation of working and rest conditions for workers;
- Transport hazard

Operation stage:

- Danger of accidents and emergencies, including flooding, fire and other

The Project will require establishing mobile labor camps during the construction phase. This will entail influx of external labor force to the project impact area. There is a probability of conflicts to occur between different groups or individuals among the contractors' workforce. Division of workforce between the foreigners and the locals may cause the conflicts same as potential cultural differences, which may lead to misunderstanding. Gender-based labour risks and impacts include women's privacy, sexual harassment, equal pay for equal work and discrimination during hiring. The mitigation measures should include training sessions on local culture for foreign labor force/specialists. This may help not only dealing with host communities, but also to establish good rapport within local workers. If no mitigation measures are foreseen, the potential impact associated with labor influx is rated as Moderate to High.

The potential community safety and health impacts associated with the project implementation are as follows: a) Increased level of communicable diseases transmitting between contractor's workforce and local communities, and within the group of contractor's employees itself; b) Increased stress levels and associated mental effects experienced by local communities due to the arrival of substantive number of personnel from outside the districts of operation (Khatlon) or the country; and c) Possible conflicts and tensions due to cultural variations (e.g., gender

relations or attitude to alcohol use) and differing mentalities between the local communities and non-resident workforce that may be unfamiliar with the local conventions and customary modes of behaviour.

Sexual and gender-based violence is one of the human rights violations. This type of violence perpetuates a gender role stereotype that denies the human dignity of the individual and leads to a dead end in human development. The vast majority of victims of sexual and gender-based violence / survivors are women and children. Any manifestation of violence during the construction and operation of the facility is not allowed. To prevent any kind of sexual violence, the contractor's company must conduct trainings and seminars through their own efforts or the involvement of external specialists.

ESS 3, Resource Management, Pollution Prevention and Management

Construction phase:

- Generation of household and construction waste;
- Hazardous substances - for example, asbestos, volatile organic compounds (VOCs), waste fuels and lubricants and other POPs; varnishes, paint, etc.
- Increased greenhouse gas emissions;

Operation stage:

- Low energy efficiency;
- Waste generation;

ESS 4) Protection of health and safety of the population;

- Noise level;
- Vibration;
- the danger of movement of construction equipment during construction work for local residents living near the complex;
- dust emissions from construction activities and their impact on workers and residents of adjacent houses,
- The risk of spreading infectious diseases, including COVID19;
- Injury hazard for the local population, especially children;
- Temporary interruption of energy and water supply;

During the preparation of this report, all drinking water sources were checked for compliance with sanitary standards and no deviations were found.

ESS 5) Acquisition of land, restriction of land use rights and involuntary resettlement;

- Alienation of land

Within the framework of this project, land acquisition is not envisaged for three objects. The project will not conduct peer-review consultations and consider compensation issues.

- The risk of accidental loss of cultural and archaeological values;

In case of confirmed facts of damage to cultural and archaeological values, the contractor company is obliged to notify the customer, the district hukumat, as well as employees of the cultural authorities, the National Academy of Sciences of the Republic of Tajikistan about the incident and suspend all work until the damage to the cultural and archaeological site is clarified

- The development of the RAP plan is the responsibility of the executing company.

ESS 6) Biodiversity Conservation and Sustainable Management of Living Natural Resources;

Construction phase:

- Destruction of vegetation;
- Disturbance of animal habitats;
- Ecology of terrestrial organisms;

None of the objects will affect the habitats of specially protected species, as well as specially protected natural objects and territories. At the same time, wild animals live on and near construction sites and their migration routes are located - foxes, hares, eagles, small rodents. The risk of disruption to migration routes is low, since all objects are located near settlements, however, measures should be taken to register habitats and preserve migration routes.

The plots have a small amount of green space. All plantings are of no particular value, are not included in the exclusive list of the Red Data Book flora, can be removed or moved to another place. The exact number of trees affected will be known at the time of commencement of work.

ESS 8) Cultural heritage;

In general, the project will have a positive effect on the cultural heritage, since it is directly aimed at the restoration and maintenance of cultural and historical values. However, although construction works are not expected to have direct physical impact on the heritage monuments, indirect impacts from the movement of construction machinery, presence of work force, etc. as well as permanent impact on the visual / aesthetic view and tourist experience during visitation of these sites will be closely looked at.

A specific risk for the Madrasah facility during the construction phase will be the process of transferring burials, which will require agreements and coordination with the local population and authorities.

To prevent the listed risks, in all cases, trainings, seminars and discussions will be held for contractors, technical supervision engineers and the local population, including children, on minimizing risks and reducing the impact on the natural and social environment.

Below we provide a general matrix (table 2) of the possible environmental and social impacts for all three sites. The basis is the list of the above general risks, as well as the assessed parameters of the quality of environmental components (air, soil, aquatic environment), possible anthropogenic impact (noise, vibration, handling hazardous substances), as well as a number of environmental and social aspects (handling waste, resettlement, gender-responsive voices, development of commercial alternatives, etc.

The risk assessment is given in general terms based on a visual study of the sites and a comparison of environmental conditions and possible impacts. An updated risk assessment for each of the three sites and recommended activities will be provided in the individual IEEs based on the results of environmental and social screening using the checklists (checklists) and reporting forms provided in the Appendix (Appendix 3, Appendix 4, Appendix 5).

During the assessment of the intangible heritage at the rehabilitation sites, it was determined that the project activities will not affect historical, cultural or religious sites.

Summary of impacts on key environmental parameters

No.	Environmental parameters	Risk degree	Cause	Recommendations for reducing risks and adverse effects	Expected level of risk when applying recommended measures
1	<p>Construction phase</p> <p>Air quality, incl. dustiness</p>	Moderate	Potential impact of construction, excavation or other excavation work on dust settling on the historic site	<p>Determination of the quality of work of construction teams, the movement of special equipment, the use of mandatory irrigation of the territory, the safety of workers and local residents, the use of PPE (respirators, masks, etc.). Limiting the speed of transport.</p> <p>Compliance with national emission standards (Appendix 1, Table 1)</p> <p>Car wash.</p>	Low
2	Water quality	Substantial	<p>The facility requires restoration of a well for water supply, its economical use, leveling of the slope to prevent swamping of the territory of the complex, and minimization of emissions into water.</p> <p>Contamination of surface and ground waters with fuels and lubricants.</p> <p>Development of soil on slopes to water bodies</p>	<p>During construction, recommendation for the use of water from tanks, additional tanks for collecting waste water, control of the rise in the level of groundwater at the facilities to prevent erosion. Conclusion of contracts with authorized organizations for water supply and discharge of waste and waste water. Monitoring the health of machines and mechanisms. Organization of timely liquidation of spills of fuels and</p>	Moderate

				lubricants (availability of the necessary materials and equipment). Compliance with national emission standards. Taking anti-erosion measures when working on slopes near water bodies	
3	Soil quality	Substantial	Removal of the top fertile layer during construction work. Increased soil erosion	The extraction of soil, its movement must meet the requirements of the current legislation on subsoil, the prevention of the rise of groundwater. The removed fertile layer must be stored separately and used for restoration work.	Low
4	Destruction of vegetation	Substantial	Trampling, plant cover sealing, tree transplanting	The use of mesh nets, allowing to preserve the grass cover (instead of the designed continuous hard surface (asphalt, concrete, tiles)) Transplanting shrubs and trees in consultation with local authorities.	Moderate
5	Disturbance of animal habitats	Low	Disruption of established migration routes and feeding areas	Study of migration routes and feeding areas for wild animals, organization of alternative migration corridors and feeding places, organization of nesting and feeding places for birds	No risk
6	Noise level	Substantial	Work of machines, construction equipment, passage of vehicles	The need to monitor noise during construction work, limiting the operation of equipment in time,	Low

				excluding noise during the rest of local residents. The use of personal hearing protection and noise insulation. Installation of mufflers to limit engine noise not exceeding 55 dB (A). Installation of noise-absorbing and noise-reflecting screens.	
7	Vibration	Substantial	Destruction of the foundations of the ancient remains of the complex and modern buildings from the passage of cars, during the operation of construction equipment	Constant monitoring to limit the use of heavy equipment, reduce the speed of movement on adjacent roads. Use of a special anti-vibration coating in particularly hazardous areas.	Moderate
8	Generation of household and construction waste	Substantial	Failure to comply with timely disposal and disposal of waste	Waste management plan development. Sorting and separate collection of waste at the place of their generation. Garbage containers installation. Conclusion of contracts for the entire construction period with organizations authorized to handle waste.	Moderate
9	Hazardous substances - for example, asbestos, volatile organic compounds (VOCs), waste fuels and lubricants and other POPs	Substantial	Use and treatment (including disposal) of materials that may contain asbestos. Use of hazardous chemicals in construction or plant care	A complete ban on the use of asbestos or materials containing asbestos, as well as hazardous and volatile chemicals. Use of recommendations for handling AFM (Appendix 2). Compliance with national emission standards	Low

				<p>Organization of places for placing and parking (including temporary) machines and mechanisms.</p> <p>Collection and disposal of waste fuels and lubricants and POPs in accordance with national standards. Pesticide Use Regulation (Integrated Pest Management Plan)</p>	
10	The risk of spreading infectious diseases, including COVID19	Substantial	Failure to comply with the rules of sanitation and hygiene, behavior during epidemics and pandemic COVID 19	Quality control of used drinking water and food. Compliance with the requirements of sanitation and hygiene, behavior during the COVID 19 pandemic (see Appendix 6). Timely development of measures to prevent other infections and behavior during their manifestation. Regularly checking the efficiency of septic tanks.	Moderate
11	Increased greenhouse gas emissions	Moderate	Emissions from vehicles, destruction of vegetation	Control of vehicle emissions, reduction of empty hauls and idle work.	Low

12	Danger of accidents of engineering structures, including flooding, fire and other emergencies	Moderate	Malfunction or errors in the operation or installation of engineering structures	<p>Organization of technical supervision over the production of work, compliance with safety regulations and rules for the operation of equipment and structures. Provision of personal protective equipment (helmets, overalls, including reflectors, respirators)</p> <p>Equipment of facilities with signaling devices, fire extinguishing devices, first aid kits, etc.</p> <p>Conducting staff training in case of emergency</p>	Low
13	Injury hazard for the local population, especially children	Substantial	<p>Lack of fences and security. Weak explanatory work with the population.</p> <p>Lack of pedestrian crossings and appropriately equipped sidewalks</p>	<p>Construction site fencing, warning signs / notices. Obtaining the appropriate permits from the road service and road safety. Organization of safe access roads. Conducting conversations with the local population, including in schools.</p> <p>Organization of places for placing and parking (including temporary) machines and mechanisms.</p> <p>Organization of sidewalks and crossings, including temporary</p>	Low

14	Alienation of land	Substantial	Underestimation of the existing structure of land use and occupation of the local population	Revision of the project design. Development of resettlement plans in agreement with local residents and authorities	Low
15	Violation of working conditions and rest of workers	Moderate	Poor organization of the construction camp and everyday life (canteens, toilets, showers, places for rest)	Compliance with the requirements for sanitary and living conditions of places of temporary residence (availability of properly equipped canteens, toilets, showers, places for rest). Organization of a construction camp in a safe place.	Low
16	Temporary interruption of energy and water supply	Moderate	Repair work affecting the main communications	Timely notification of local residents, organization of alternative water and energy supply during outages.	Low
17	Local discontent	Moderate	Violation of social guarantees and obligations.	Organization of a feedback mechanism and registration of complaints, incidents and emergencies	Low
Operation phase					
18	Low energy efficiency	Moderate	Use of outdated and energy-consuming technologies	Provide for the possibility of using alternative energy sources (solar panels, mini hydroelectric power plants, wind turbines)	Low
19	Danger of accidents including flooding, fire and other emergencies	Moderate	Malfunction or errors in the operation of buildings, structures and equipment	Compliance with safety regulations and rules for the operation of equipment and structures. Equipment of facilities with signaling devices, fire extinguishing devices, first aid kits, etc.	Low

				Preparing an emergency response plan. Conducting training of personnel in case of emergency. Introductory briefing for staff.	
20	Risk of accidental loss of cultural and archaeological values	Moderate	Accidental damage to cultural and historical property during excavation and construction works Destruction of the historical part of the complex during reconstruction	Staff training in the rules for responding to accidental finds. Preliminary examination of possible places of cultural and historical value. Non-interference in the historical parts of the structure	Low
21	The risk of spreading infectious diseases, including COVID19	Substantial	Failure to comply with the rules of sanitation and hygiene, behavior during epidemics and pandemic COVID 19	Arrangement of safe toilets and accessible sources of drinking water. Adequate supply of water. Quality control of used drinking water and food. Compliance with the requirements of sanitation and hygiene, behavior during the COVID 19 pandemic Regularly check the efficiency of septic tanks.	Low
22	Waste generation	Substantial	Failure to comply with timely disposal and disposal of waste	Waste management plan development. Sorting and separate collection of waste at the place of their generation, with subsequent disposal. Garbage containers installation. Conclusion of contracts with	Low

				organizations authorized to handle waste.	
23	Emergencies, including earthquakes, flooding, fire and other emergencies	Moderate	Natural emergencies or malfunction / errors in the operation of engineering structures	Development of an emergency response plan. Equipment of facilities with signaling devices, fire extinguishing devices, first aid kits, etc. Conducting staff training in case of emergency	Low
	Overall level of risk	Substantial			Moderate

Peculiarities of risks for the Hulbuk complex

No.	Environmental parameters	Degree risk	Cause	Recommendations for reducing risks and adverse effects	Expected level of risk when applying recommended measures
1	Flooding	Substantial	Disruption of the existing drainage system	Laying temporary drainage structures at specific locations if existing drains are blocked due to construction work. Maintaining all drainage paths by avoiding blockages at all times. Minimize excavation of drainage systems in the affected area.	Low
2	Pedestrian and Cyclist Safety	Moderate	Lack of pedestrian crossings and appropriately equipped sidewalks	Organization of sidewalks and crossings, parking lots.	Low
3	Estimated risk of overpopulation	Moderate	On the territory of the Khulbuk fortress, there are residential buildings	This issue is of particular importance, in the case of expansion of the size of the residential buildings may be affected. Consideration should be given to the provision of compensation.	Low
4	Safety, health of personnel and population	Moderate	Injuries and accidents at the work site, during the operation of tools	Briefing workers: (a) instructions for safe work; (b) safety requirements; (c) the principles of the signaling system; (e) conducting trainings related to the prohibition of sexual violence.	Low

Peculiarities of risks for the historical complex Khoja Mashhad

No.	Environmental parameters	Risk degree	Cause	Recommendations for reducing risks and adverse effects	Expected level of risk when applying recommended measures
5	Loss of a natural monument (plane tree)	Substantial	The need to transplant trees for landscaping	Preservation of a natural monument, its inclusion in the historical cultural landscape at the design stage	Low
6	Potential epidemiological hazard	Substantial	Transfer of graves	Control of bacteriological parameters of the transferred remains	Moderate
7	Loss of a sacred object	Substantial	Transfer of graves	Resettlement plan	Low
8	Decline in the well-being of some citizens	Substantial	Liquidation of the vegetable garden on the territory of the complex	Resettlement plan	Low

Peculiarities of risks for the Chiluk Chor Chashma complex

No.	Environmental parameters	Risk degree	Cause	Recommendations for reducing risks and adverse effects	Expected level of risk when applying recommended measures
1	Loss of a natural monument (plane trees)	Substantial	The need to transplant trees for landscaping	Preservation of a natural monument, its inclusion in the historical cultural landscape at the design stage	Low
2	Loss of land use rights	Substantial	the land belongs to the Cotton plant of the Shaartuz region	Drawing up a resettlement plan with the settlement of land use rights.	Moderate
3	Terrain transformation	Substantial	Landscaping	Partial restoration of the original landscape. Creation of a new landscape structure	No risk
4	Sealing and trampling of soil and vegetation cover	Moderate	Application of continuous coverage for roads and pedestrian roads	Structural organization of parking, pedestrian paths, including the use of mesh grids.	Low

Thus, with the overall initial risk defined as " **Significant** ", the application of mitigation measures will lead to a decrease in all risks by at least one gradation, and in general - to the characterization of the overall risk as " **Moderate** "

Negative impacts on any public area are limited to the site, inside storage areas and workers' offices and will be temporary.

The main social aspects requiring attention are the possible involuntary resettlement and relocation of economic facilities, the possibility of developing entrepreneurship based on national and cultural characteristics, employment of the local population, as well as a number of social issues related to the management of consumption waste, the establishment of sanitary facilities for guests and the population. ...

Potential impacts are temporary, predictable and reversible and can be addressed through the use of national and international standards, design criteria and / or implementation of Environmental and Social Management Plans (ESMPs) to be developed for each of the three sites.

6. Preliminary public consultations and design guidelines

During the preparation of this report, there were ongoing consultations with stakeholders (affected communities and relevant stakeholders) in accordance with the Stakeholder Engagement Plan (SEP) developed for this project. In addition, the following two major consultation meetings were held at the project site.

The details of the meetings and consultations are described below in section 9.

At the initial stages of the ESIA studies, consultation meetings were held, including consultations to obtain an informed opinion of the people; women, people with disabilities and other vulnerable groups, etc. and local non-governmental organizations (NGOs). During these consultations, communities are provided with a summary of the project and the various rights to which they are entitled.

Following the preparation of the draft of this ESIA, consultations were held with the communities as well as with institutional stakeholders. Consultations in view of the SARS-Covid-19 coronavirus pandemic were carried out on an individual basis through meetings, house-to-house visits, and communication with business structures. Final consultations are reflected in the protocols and signatures of all interested parties.

Sociological research by districts

The goal is to study the attitude of all interested parties to the reconstruction of a historical object located on the territory of their district.

Three categories of stakeholders were selected to conduct a complete and detailed report: local residents, entrepreneurs and government officials (representatives of hukumats and jamoats).

To conduct a sociological study, questionnaires have been developed with exhaustive questions regarding the restoration of cultural objects.

Main goals:

- Analysis of the opinions of the local population / entrepreneurs / government officials on the reconstruction of a historical site;
- Analysis of proposals from the population / entrepreneurs / government officials to improve the activities of the historical site;
- Analysis of the opinion of the population / entrepreneurs / government officials on the development of tourism in the area where the historical site is located;
- Research of social problems present in the territory of the region where the historical object is located;
- Studying the opinion of the population about participation in the district development program and the use of grants for business development in the territory of the district where the historical object is located;
- Analysis of public opinion about the type of business that will be implemented after receiving the grant.

6.1. Khulbuk site, Vose district, Khatlon region, design recommendations

Identification of environmental and social issues in the Vose area, Hulbuk site. Meetings were held: with the head of the apparatus of the executive power of the Hukumat district of Vose Kurbonzoda Safarbek, tel: 8331123284; mob: 918673310, director of the "Hulbuk" complex Khodjaev Abdullo, tel: 908001708.

Discussed: improving landscape architecture, dividing cultural green areas, providing the necessary lighting for the outer and inner parts of the site. The creation of spaces for private economic activities such as cafes, restaurants and shops is under consideration.

The director of the complex voiced the problems of the need to preserve the green spaces that now exist on the territory of the Khulbuk fortress. Access to drinking water is a critical issue. The lack of water is felt even in technical and irrigation issues. Near the museum is the village "Mekhrobod" and the only well of the 70s of the last century is used by the southern part of the villagers. Process water flows by gravity.

The project team, together with the authorized representatives of the districts and the staff of the complex, held group discussions with the population living in the sub-project district to familiarize themselves with the work of the project, establish contact and receive their proposals.



Figure 15. Data collection in the Hulbuk complex

6.2. Khoja Mashhad site, Shaartuz district, Khatlon region, design recommendations

Meetings were held: Marat Tagayev, chairman of Sayed jamoat Nasredinov tel: 934068666, deputy chairman of Sayed jamoat Kholmatova Istatmo, tel: 933274545, Azimov Davlatmurod, assistant chairman of Sayed jamoat, tel: 937279738, Sharipova Barno, assistant guard 935041184 (son's number from Dushanbe) Azimov Muzafar, teacher from the Pedagogical University in Dushanbe.



Figure 16. Specialist of PA "Peshsaf" communicates with local residents of Shaartuz district



Figure 17. Specialists of PA "Peshsaf" communicate with the leadership of Sayed jamoat, Shaartuz region

The meeting was held at the level of the Chairman of the Shaartuz region and the activity of the expert group was approved. A representative of the jamoat was assigned to work together. The leadership of the public organization "Peshsaf" acquainted the leadership of the jamoat and residents of nearby settlements of the complex with the goals and objectives set for the research group.

Discussed: improving landscape architecture, dividing cultural green areas, providing the necessary lighting for the outer and inner parts of the site, moving the burials that are located on the territory of the complex. The

creation of spaces where private economic activity will take place is being considered, such as cafes, restaurants, private hostel / guest house, shops.

The complex is under the operational management of local residents, although the ownership of the site belongs to the state, which independently conduct maintenance, including the use of land for agricultural needs. Access to drinking water on the territory of the site is limited, pumping with a hand pump is carried out due to outdated technology. Water goes into the ground without proper drainage. This pump is the cause of soil erosion, it must be urgently dismantled, because it is located inside the complex.

A feature of the complex is the presence of burials both inside the madrasah and outside its territory. The burials inside the Khoja Mashhad are an object of religious worship, but the condition of the graves leaves much to be desired.



Figure 18. Burials inside the Khoja Mashhad building



Figure 19. Burials on the territory of the Khoja Mashhad madrasah

6.3. Chilu Chor Chashma site, Nosiri Khusrav district, Khatlon region, design recommendations

Meetings were held by: Nishonzoda Davron, chairman of the district Nosiri Khusrav, Umidbek Boboev, public organization "Rushdi Dier", as well as local staff of the historical and tourist complex ChiluChor Chashma Tagaymurodov Shaimardon and Odil.

A meeting was organized and held at the level of the head of the district Nosiri Khisrav Nishonzoda Davron, where the goals and objectives of the modern and aesthetic development of the ChiluChor Chashma complex were discussed with the involvement of all parties, respect for the rights and legitimate interests of the owners of the complex without prejudice to the ecological well-being of the territory.

Discussions were held with representatives of civil society and dekhkan farms, who expressed their views on the source of Chilu Chor Chashma. It is substantiated that the source, in addition to recreational functions, is also a source for drinking water and agriculture. Its systematic waste pollution leads to the loss of water, which does not reach water users. It is proposed to install a special debris-catching mesh at the exit from the facility.

The meeting with representatives of the owners of the object was based on plans for the further use of the territory of the sacred spring as an object of recreation and preservation of the holy spring as an object of worship. Among the proposals: the use of the waters of the source to create the infrastructure of bottled water and separate swimming pools, in order to protect tourists and vacationers from the immediate place of the source.



Figure 20. Meeting of PA "Peshsaf" specialists with Nishonzoda Davron, chairman of the Nosiri Khusrav district



Figure 21. Chilu Chor Chashma spring

7. Analysis of alternatives in terms of risks

7.1. Hulbuk.

Alternative "Not to build"

The alternative "Do not build" in this case will mean the absence of any action in relation to this object, refusal of improvement, which is equivalent to refusal to develop the tourism development sector in Tajikistan. Therefore, the "Do not build" alternative is unacceptable, and the potential socio-economic benefits from the implementation of such a project far outweigh the negative consequences, all of which can be controlled and minimized to an acceptable level. The measures proposed in this ESIA to reduce environmental and social risks will help to significantly reduce the degree of expected negative consequences.

Development of the tourism sector. Reconstruction of tourism facilities will provide greater access for tourists to the country to access the historical and cultural values of Tajikistan at affordable prices. This will also stimulate the development of local handicrafts. Thus, it will help the development of the tourism sector in Tajikistan and the creation of tourism infrastructure.

Alternative "to build"

The project was designed in such a way as to provide the complex with a more accessible and convenient design. There is no need to find an alternative site for the project, as the work will be carried out within the existing areas of the complex.

The main issue will be the connection of the sections of the complex: the fortress and the museum, separated by a highway.

The first three options are obviously the most expensive, but safe for tourists. The latter option is the least expensive, but the most dangerous, although with proper design this danger can be minimized. Designers should consider all the pros and cons, taking into account the financial capabilities of the project, and propose the most acceptable solution, the security measures for which will be considered in the ESMP for this facility.

7.2. Khoja Mashhad.

Alternative "Not to build"

The alternative "Do not build" in this case will mean the absence of any action in relation to this object, refusal of improvement, which is equivalent to refusal to develop the tourism development sector in Tajikistan. Therefore, the "Do not build" alternative is unacceptable, and the potential socio-economic benefits from the implementation of such a project far outweigh the negative consequences, all of which can be controlled and minimized to an acceptable level. The measures proposed in this ESIA to reduce environmental and social risks will help to significantly reduce the degree of expected negative consequences.

Development of the tourism sector. Reconstruction of tourism facilities will provide greater access for tourists to the country to access the historical and cultural values of Tajikistan at affordable prices. This will also stimulate

the development of local handicrafts. Thus, it will help the development of the tourism sector in Tajikistan and the creation of tourism infrastructure.

Alternative "to build"

The project was designed in such a way as to provide the complex with a more accessible and convenient design. There is no need to find an alternative site for the project, as the work will be carried out within the existing areas of the complex.

7.3. Chilu Chor Chashma.

Alternative "Not to build"

The alternative "Do not build" in this case will mean the absence of any action in relation to this object, refusal of improvement, which is equivalent to refusal to develop the tourism development sector in Tajikistan. Therefore, the "Do not build" alternative is unacceptable, and the potential socio-economic benefits from the implementation of such a project far outweigh the negative consequences, all of which can be controlled and minimized to an acceptable level.

Development of the tourism sector. Reconstruction of tourism facilities will provide greater access for tourists to the country to access the historical and cultural values of Tajikistan at affordable prices. This will also stimulate the development of local handicrafts. Thus, it will help the development of the tourism sector in Tajikistan and the creation of tourism infrastructure.

Alternative "to build"

The project was designed in such a way as to provide the complex with a more accessible and convenient design. There is no need to find an alternative site for the project, as the work will be carried out within the existing areas of the complex.

Resettlement issues will concern a small amount of work and are related to the possible transfer of land use rights. The territory of the complex is in the use of the Cotton Plant of the Shaartuz region. The presence of these land rights to this territory may make it impossible to implement project activities in accordance with the requirements of the World Bank. To include this object in the list of beneficiaries, the following scenarios were considered:

- "Zero" option in relation to this complex and refusal to implement the project at this place if the owner does not refuse to restrict his rights to the object;
- "Concession agreement" of the owner with the administration of Nosiri Khusrav district after the rehabilitation of the facility with obligations to maintain the facility, employment of the population, and ensure the development of national crafts.
- "Refusal of the owner" from the object in favor of the state without an obligation for further operation. In this case, the object will be fully under the operational management of the administration of the pilot region and the right to decide the fate of the object will be transferred to the Hukumat of the region.

When choosing the last two options, financial intervention of the project is possible. When choosing the first option, the "do not build" option will work.

In any case, a plan will need to be drawn up and implemented during the course of the project before project activities can be undertaken.

The measures proposed in this ESIA to reduce environmental and social risks will help to significantly reduce the degree of expected negative consequences both during the construction phase and during operation. A number of solutions (such as the arrangement of transport entrances, sanitary facilities, etc.) will help improve the existing environmental and sanitary situation.

Analysis of alternatives and proposed solutions

No.	Problem	Location	Causes of the problem	Considered solutions
1	There is no access to clean drinking water	Vose (Hulbuk)	The water supply system of the local population, located near the complex,	<i>Creation of a new water supply system</i>

			has fallen into disrepair due to lack of proper maintenance.	
2	Low level of solid waste management	Vose (Khulbuk), Shaartuz (Khoja Mashhad) and Nosiri Khusrav (ChiluChor Chashma)	Lack of conditions for the collection, temporary storage and disposal of solid household waste, calculations of formation and coordination with local environmental authorities, as well as housing and communal services	Establish waste bins, provide for primary sorting, and disseminate information signs and information materials on the culture of waste collection
3	Low employment rate of the local population	Vose (Khulbuk), Shaartuz (Khoja Mashhad) and Nosiri Khusrav (ChiluChor Chashma)	Lack of knowledge and financial resources for the implementation of commercial start-ups for the development of tourism in the region	Development of commercial start-ups in the tourism sector. Implementation of the practice of training the local population in the field of entrepreneurship, the allocation of grant funds for the development of startups
4	Unfavorable sanitary conditions	Vose (Khulbuk), Shaartuz (Khoja Mashhad) and Nosiri Khusrav (ChiluChor Chashma)	There are no sanitary and hygienic conditions for the operation of toilets on the site	It is recommended to consider several options for the placement of modern toilets with an autonomous system for wastewater treatment by aeration
5	Degradation and depletion of land and water resources	Shaartuz district (Khoja Mashhad)	The passage of a small irrigation canal through the territory of the Hajja Mashhad complex leads to the risk of soil erosion and siltation of water sources	Relocation of a small irrigation canal, its arrangement according to modern conditions (concreting)
6	Loss of sacred objects	Shaartuz district (Khoja Mashhad)	On the territory of the complex there are separate burials dated to 60-70 years of the last century and 1 modern mausoleum of one of the famous local scientists	Drawing up a resettlement plan - transferring graves from the complex to another, specially designated local cemetery with the permission of the relatives of the deceased
7	Low level of cultural and historical attractiveness	Shaartuz district (Khoja Mashhad)	The museum existing on the territory of the complex does not meet modern requirements and cannot be used for scientific, educational and educational purposes	Creation of a special museum, training of personnel, replenishment of artifacts and museum literature

8	Emergency hazard	Shaartuz (Khoja Mashhad) and Nosiri Khusrav (ChiluChor Chashma)	The roadbed that leads to the facilities does not meet the expectations for the development of tourism. Road traffic conditions are dangerous for pedestrians	It is necessary to propose work to restore the roadway leading from the central highway to the facility. Equipment of transport and pedestrian zones with road signs, markings, traffic lights, fences.
9	Low level of training of specialists - guides and information materials	Vose (Khulbuk), Shaartuz (Khoja Mashhad) and Nosiri Khusrav (ChiluChor Chashma)	In Vose and Khoja Mashhad - knowledge is transmitted at the level of one family. There are specialized personnel in Vose, but not in Khoja Mashhad. There are no pointers to all three objects for orientation of persons who visit the object for the first time	Provide special pointers to objects in the design of the project, support for training personnel for objects
10	Danger of moving along the trail to the tombstone of Kambar Bobo	Nosiri Khusrav (ChiluChor Chashma)	The trail is in poor condition	The need to restore the trail and its equipment with steps, handrails, signs.

8. Analysis of the composition of the parties involved and recommendations for their participation

The institutions that will be involved in environmental management under the subproject are the following:

- Government of the Tajik Republic
- Ministry of Finance through the Project Implementation Center (PIC)
- The World Bank
- Environmental Protection Committee under the Government of the Republic of Tajikistan.
- Hukumats of target districts
- Project supervision (consultant)
- PIC - Environmental Protection Personnel
- Contractor and subcontractors
- Non-governmental organizations
- Affected Communities

The main responsibility for environmental management rests with the executing agency. However, the parties involved play an important role and are responsible for the effective implementation of the ESMP in order to avoid, minimize and mitigate adverse impacts and implement planned improvements. The main roles of the various parties are summarized below. Responsibility for environmental management will lie primarily with:

- (i) Project Implementation Center of the Ministry of Finance (PIC)
- (ii) Supervision company
- (iii) Contractor

The PIC will coordinate with the Committee for Environmental Protection and the Committee for Architecture and Urban Planning during the construction / reconstruction period for any necessary contacts. The PIC under the Ministry of Finance employs three people who will be responsible for the implementation of environmental safety measures. These are the following persons:

- 1) The PIC project coordinator is responsible for the overall implementation of security measures;

2) Environmental specialist of the PIC, responsible for the implementation of environmental safety measures in the rehabilitation of critical infrastructure links; and

3) Specialist on social issues of the PIC, responsible for the implementation of measures of social protection of the population, work with citizens' appeals, etc.

The supervisory company appoints a senior engineer responsible for environmental aspects. This Engineer will oversee the Contractor's implementation of the ESMP and will be jointly responsible for the timely and reliable execution of works and activities in sequence within the project. The Contractor's Environmental Engineer will have overall responsibility for ensuring that the design and evaluation of the physical work options comply with Tajikistan's environmental codes, regulations and requirements.

The on-site Implementation Center representative will be the monitoring agency for the success of the approved ESMP. The contractors will be responsible for carrying out any modernization / remediation work in accordance with the environmental requirements specified in the bidding documents.

The table below shows the distribution of environmental responsibility among stakeholders during project implementation.

Distribution of roles in environmental management

Participant	Activity	Supporting Documentation
Construction company	<p>Allocates an adequate budget to mitigate environmental impacts during the tendering process based on the ESMP.</p> <p>Appoints a person responsible for the health and safety of the environment at each facility.</p> <p>Provides facility-specific implementation of the ESMP.</p> <p>If necessary, obtains permission from the authorized body or local executive body.</p> <p>Obtaining the required permits / licenses</p> <p>Regularly (once a month) reports to the supervision contractor and the environmental and social specialists of the PIU on the implementation of mitigation measures and immediately in the event of incidents.</p> <p>Ensures that public complaints are recorded and taken care of in accordance with the Grievance Redress Mechanism (GRM)</p>	<p>Incorporation of ESMP into tender documents</p> <p>Copies of regular reports</p> <p>Copies of permissions, licenses</p> <p>Admission Applications from Surveillance Contractor and PIU</p> <p>Environmental Professionals</p> <p>Periodic reports and subproject completion report</p> <p>EMP checklists</p> <p>Decision of the authorized body or local executive body on the need for an ESIA (if any)</p> <p>GRM instructions and authorization on the site.</p>
Contractor, specific object	<p>Ensures the implementation of the ESMP for a specific site through regular (weekly) follow-up visits to the construction site.</p> <p>Ensures that the construction contractor provides regular mitigation and monitoring reports. Checks the quality of environmental reports</p> <p>Ensures that the Contractor obtains all required permits / licenses.</p> <p>Ensures that the Contractor implements the GRM</p> <p>Organize training for construction contractor personnel on environmental protection requirements.</p>	<p>Admission Statements from Surveillance Contractor</p> <p>Copies of Regular Reports</p> <p>Copies of permits / licenses</p>
Supervision contractor	<p>Develops Site Specific Environmental and Social Management Plans (ESMPs) in accordance with the requirements of national regulations, the World Bank, TOR requirements specified in this document</p> <p>Represents a site-specific ESMP at public consultation meetings</p>	<p>Public consultation, oversight reports</p>
Feasibility and Detailed Design Contractors	<p>Providing baseline data for specific ESMP</p> <p>Quality assurance for a specific project site</p> <p>Conducting regular site supervision (at least once a month)</p> <p>Submit quarterly reports to the World Bank on environmental mitigation and monitoring</p>	<p>Site supervision reports</p> <p>Quarterly reports</p> <p>World Bank Environmental Screening</p>

PIU Environmental and Social Specialist	Review of design and other documentation in the application package for obtaining the necessary environmental documentation and licenses / permits from a notified body or local executive body Maintain complete environmental documentation files for World Bank review Monitor compliance with mitigation plans (if necessary) Conduct an environmental inspection in an emergency response. Preparation of ESIA and ESMP documentation for measures to respond to environmental and social issues	ESIA and ESMP Inspection reports of objects by 3 specialists of the PIU MF
The World Bank	Organize training for the personnel of the PIU on environmental protection. Identify problems / difficulties and propose solutions Providing Documentation Comments Providing training	Project implementation documents in implementation status and results reports and missions. Aide-memoire Training records

An analysis of stakeholder participation by site is given below.

8.1. Khulbuk , Khatlon region, Republic of Tajikistan

In total, during the **sociological survey** , n = 38 residents living near the Khulbuk fortress were interviewed. Representatives of different age groups, social status were interviewed (see Appendix 8)



Figure 22. Sociological survey of the population in the urban settlement Khulbuk

The Khulbuk fortress is a historical heritage of the Republic of Tajikistan and is of great importance for the entire population of Tajikistan. Representatives of the Khulbuk Fortress have applied several times for the inclusion of this historical site in the UNESCO Heritage Site. Presumably, the restoration of the Khulbuk fortress will help it become a more obvious choice for including the fortress in the historical chronicles of UNESCO.

The residents of the jamoat, who are located near the Khulbuk fortress, are positive about the reconstruction of the object, in their opinion, the location of the fortress will attract not only local tourists, but will also become an important site for foreigners to visit.

Now the object needs a radical reconstruction, according to the local population, the creation of internal infrastructure is the main factor in the absence of mass visits to this historical object.

The location of the fortress next to the central road causes concern among local residents and the director of the museum dedicated to this historical site. Vibration from passing cars gradually destroys the historical site and in subsequent years can lead to catastrophic consequences.

The local population is ready to learn new crafts and create a national product that will be associated with the Republic of Tajikistan. Also, the local population is ready to participate in startups to open their own business.

In the Guliston jamoat (Khulbuk), eleven entrepreneurs were interviewed, in their opinion, the creation of high-quality infrastructure and advertising of the fortress will improve the circulation of traditional goods and create new jobs for the local population.

Representatives of the state authorities in the Khukumat of the Vose district and the Guliston jamoat speak positively about the reconstruction of the historical object, the benefits for the districts and the city can be quite tangible. The widespread support of these bodies will make it possible to carry out the reconstruction of facilities without any particular complications. Government officials are hoping for possible job creation and infrastructure upgrades. Each region has a number of problems that need to be addressed, as unemployment is the main negative factor that exists everywhere in all regions. Attraction of tourists and government assistance will give an impetus to the local population for the development of entrepreneurship. In the event of a possible resettlement of the population during the expansion of the territory of the Khulbuk fortress, the Vose hukumat will allocate a land plot for resettlement, but the hukumat's budget does not provide for the construction of new houses for the resettlers.



Figure 23. Meeting with the Chairman of the Hukumat of Vose District

Key recommendations

The main recommendations identified in the course of conducting a sociological study on the reconstruction of the Khulbuk fortress are as follows:

- Development of a methodology to involve the local population in the reconstruction of the facility as builders under the supervision of a specialist;
- Adaptation of the territory next to the historical site for private commercial and creative activities, including crafts and handicrafts; arrangement of a specialized workplace (office) with auxiliary rooms and / or zones.
- Creation of a full-scale advertising campaign (foreign television, radio, newspapers, bloggers) to attract tourists;
- Creation of conditions for attracting local residents to participate in startups (information, consultation, assistance in collecting documents);
- Training local residents to work as guides on a historical site located in their area;
- Creation of a recognizable national merchandise with the symbols of a historical object;
- Training for men, women and girls in new crafts (embroidery, carpentry, blacksmithing) and holding fairs on the territory of the historical site;
- Conducting introductory lectures with the participation of experts for local residents about the significance of the historical site, and possible prospects for the population after its restoration;
- Conducting free introductory excursions for the young population;
- It is necessary to install forks on the road with information about the location of the historical object;
- Install garbage cans at the facility with separation of waste types;
- Construction of a bathroom in an accessible place for tourists who are visited by tourists;
- Creation of a library named after the Khulbuk fortress;
- Ensure the safety of local residents in view of the ongoing reconstruction of the facility;
- There is a need to install a banner near the Khulbuk fortress, which would describe the historical significance of the site;
- Place a security post next to the facility to protect against possible looters;
- Install a speed limiter along the path of the location of the historical object;
- Reconstruction measures to ensure the availability of jobs for the local population;
- Computerization of a historical object (computer, telephone, fax modem, etc.), security systems;
- The upbringing of the younger generation (lectures, periodic performances) - ensuring the accessibility of the historical site for visiting.

8.2. Khoja Mashhad

In total, n = 36 residents were interviewed in the course of the sociological survey. The population living near the historical site of Khoja Mashhad is most interested in the rehabilitation of the work of the site, in their opinion, the creation of infrastructure for visiting it will improve the welfare of the population. Most of the surveyed population hopes to attract tourists from abroad, and not the local population.

The main problem voiced by the majority of residents is the lack of internal infrastructure of the historical site, a place for recreation, a bathroom, a hotel. Creating favorable conditions and advertising an object is the most acceptable way to attract tourists to its territory. Basically, residents complain about the lack of a kindergarten, a first-aid post and a good road.

Most of the residents of Talbak Sadridin jamoat are ready to study new professions to engage in entrepreneurial activities in their region. Also, the local population is ready to participate in startups to open their own business.

Representatives of the state authorities of the Shaartuz district of Talbak Sadridin jamoat (Khoja Mashhad) speak positively about the reconstruction of the historical object, the benefits for the districts and the city can be quite tangible. The widespread support of these bodies will make it possible to carry out the reconstruction of facilities without any particular complications. Government officials are hoping for possible job creation and infrastructure upgrades. Each region has a number of problems that need to be addressed, as unemployment is the main negative factor that exists everywhere in all regions. Attraction of tourists and government assistance will give an impetus to the local population for the development of entrepreneurship. In the event of a possible relocation of residents, the hukumat is ready to provide a land plot, but the hukumat's budget does not include funds for the restoration of the house.

Two entrepreneurs are present near Jamoat Talbak Sadridin (Khoja Mashhad). The interviewed entrepreneur expresses a desire to participate in the rehabilitation of the object if this leads to an improvement in his welfare.

The main recommendations identified in the course of conducting a sociological study on the reconstruction of the Khoja Mashhad fortress are as follows:

- Development of a methodology to involve the local population in the reconstruction of the facility as builders under the supervision of a specialist;
- Adaptation of the territory next to the historical site for private commercial and creative activities, including crafts and handicrafts; arrangement of a specialized workplace (office) with auxiliary rooms and / or zones.
- Creation of a full-scale advertising campaign (foreign television, radio, newspapers, bloggers) to attract tourists;
- Creation of conditions for attracting local residents to participate in startups (information, consultation, assistance in collecting documents);
- Training local residents to work as guides on a historical site located in their area;
- Creation of a recognizable national merchandise with the symbols of a historical object;
- Training for men, women and girls in new crafts (embroidery, carpentry, blacksmithing) and holding fairs on the territory of the historical site;
- Conducting introductory lectures with the participation of experts for local residents about the significance of the historical site, and possible prospects for the population after its restoration;
- Conducting free introductory excursions for the young population;
- It is necessary to install forks on the road with information about the location of the historical object;
- Install garbage cans at the facility with separation of waste types;
- Construction of a bathroom in an accessible place for tourists who are visited by tourists;
- Creation of a library named after Khoja Mashhad;
- Ensure the safety of local residents in view of the ongoing reconstruction of the facility;
- There is a need to install a banner next to Khoja Mashhad, which would describe the historical significance of this object;
- Place a security post next to the facility to protect against possible looters;
- Install a speed limiter along the path of the location of the historical object;
- Reconstruction measures to ensure the availability of jobs for the local population;
- Computerization of a historical object (computer, telephone, fax modem, etc.), security systems;
- The upbringing of the younger generation (lectures, periodic performances) - ensuring the accessibility of the historical site for visiting.

8.3. Chilur Chor Chashma, Nosiri Khusrav district, Republic of Tajikistan

In total, in the course of the sociological survey, n = 30 residents living near Chilur Chor Chashma were interviewed.

The unique component of the Chilur Chor Chashma historical site lies in the universal combination of the functions of a religious site and a recreation area. The population of the district does not live on the territory of the historical object and nearby. The nearest jamoat, Istiklol, was selected as interviewers. The interviewed residents openly made contact, answering the questions included in the questionnaires. The residents of the jamoat have a positive attitude to the reconstruction of the object, in their opinion, the location of the historical object will attract not only local tourists, but will also become an important site for foreigners to visit.

The spontaneity of the emerged market near and inside the historical site raises some concerns, the combination of a religious monument and an entertainment complex erases the original value of this monument for a foreign visitor. The local population is ready to participate in startups to open their own business.

An analysis of a survey of entrepreneurs showed the distribution of zones in which entrepreneurship is especially developed. The most developed region in terms of making a profit is the Nosiri Khusrav area with its historical site Chilur Chor Chashma. During the summer, this place turns into a huge complex, with many types of services, from selling ice cream to dining rooms and jewelry. This object in the short summer period can be visited by up to 90 thousand people. The interviewed entrepreneurs realize that after the reconstruction of the object it will become more popular and prepared for receiving tourists, but they still fear that their places, which for some are the only source of income, will be taken away during the reconstruction. Most of the entrepreneurs are ready to adapt to new realities, but they want special supervision over the situation related to their retail outlets. The main problems at the moment are the lack of a decent bathroom, hotels, advertising of a historical object, which should be carried out abroad to attract tourists, neat paths, a place for waste, the lack of a first-aid post.

Representatives of state authorities in the hukumat of the Nosiri Khusrav district and the Istiklol jamoat speak positively about the reconstruction of the historical object, the benefits for the districts and the city can be quite tangible. The widespread support of these bodies will make it possible to carry out the reconstruction of facilities without any particular complications. Government officials hope for the possible creation of jobs and renewal of the infrastructure of the facilities. Each region has a number of problems that need to be addressed, as unemployment is the main negative factor that exists everywhere in all regions. Attraction of tourists and government assistance will give an impetus to the local population for the development of entrepreneurship. In the event of a possible resettlement of the population during the expansion of the territory of Chilur Chor Chashma.

Key recommendations

The main recommendations identified in the course of conducting a sociological study on the reconstruction of Chilur Chor Chashma are as follows:

- Development of a methodology to involve the local population in the reconstruction of the facility as builders under the supervision of a specialist;
- Adaptation of the territory next to the historical site for private commercial and creative activities, including crafts and handicrafts; arrangement of a specialized workplace (office) with auxiliary rooms and / or zones.
- Creation of a full-scale advertising campaign (foreign television, radio, newspapers, bloggers) to attract tourists;
- Creation of conditions for attracting local residents to participate in startups (information, consultation, assistance in collecting documents);
- Training local residents to work as guides on a historical site located in their area;
- Creation of a recognizable national merchandise with the symbols of a historical object;
- Training for men, women and girls in new crafts (embroidery, carpentry, blacksmithing) and holding fairs on the territory of the historical site;
- Conducting introductory lectures with the participation of experts for local residents about the significance of the historical site, and possible prospects for the population after its restoration;
- Conducting free introductory excursions for the young population;
- It is necessary to install forks on the road with information about the location of the historical object;
- Install garbage cans at the facility with separation of waste types;
- Construction of a bathroom in an accessible place for tourists who are visited by tourists;
- Ensure the safety of local residents in view of the ongoing reconstruction of the facility;
- There is a need to place a banner next to Chilur Chor Chashma, which would describe the historical significance of this object;

- Place a security post next to the facility to protect against possible looters;
- Install a speed limiter along the path of the location of the historical object;
- Reconstruction measures to ensure the availability of jobs for the local population;
- Computerization of a historical object (computer, telephone, fax modem, etc.), security systems;
- The upbringing of the younger generation (lectures, periodic performances) - ensuring the accessibility of the historical site for visiting.

9. Environmental and Social Management Plan (ESMP)

For each of the objects, a separate plan will be drawn up based on the format given below.

9.1. General Provisions

To draw up individual plans for individual facilities, risks will be clarified using the environmental and social screening procedure (preliminary check) and approved checklists (checklists) (Appendix 3,4,5). Based on the revised inspection, each of the facilities will be assigned an appropriate risk category in terms of high-significant-moderate-low, and the scope of work will be checked for unacceptable investments within this project. The method for identifying unacceptable activities is given in Appendix 3 and is a list of key questions. If the answer to any of the questions is "YES", then the project should be revised to reduce the associated risks.

After resolving this issue to determine the level of risks, an Environmental and Social Management Plan (ESMP) is developed, which should include the mitigation, monitoring and administrative measures that must be taken during the implementation of the project in order to avoid or eliminate negative environmental consequences. The ESMP is an effective way to summarize the actions needed to mitigate negative environmental impacts.

The ESMP identifies feasible and cost-effective measures that can reduce potentially significant adverse environmental impacts to acceptable levels. If mitigation measures are impracticable, economically ineffective or insufficient, mitigation measures are included in the plan. Specifically, the ESMP: (a) identifies and summarizes all expected significant adverse environmental impacts (including those affecting local community or related to involuntary resettlement); (b) describe - with technical details - all mitigation measures, including the type of impact to which the measure relates and the conditions for its application (for example, on an ongoing basis or in unforeseen circumstances), as appropriate, with drawings, equipment descriptions and operating methods; (c) contains preliminary assessments of any potential environmental impacts of these measures; and (d) links are established with other mitigation plans (e.g. for involuntary resettlement, local community or cultural heritage) required for the project

To facilitate timely and effective implementation of the environmental components of a project and mitigation measures, the ESMP uses an assessment of the presence, role and capacity of environmental units at the local level or at the agency and ministerial level. Where necessary, the ESMP will include recommendations for the establishment or expansion of such units and for training to ensure that the ESIA recommendations are followed. In particular, the ESMP specifies the institutional design of the project - who is responsible for implementing mitigation and monitoring measures (eg, operation, control, compliance, monitoring, remedial action, funding, reporting and training). In order to strengthen the environmental management capacities of project implementing agencies, most ESMPs include one or more of the following additional topics: (a) technical assistance programs, (b) procurement of equipment and materials, and (c) organizational changes.

Execution schedule and cost estimates.

For all three aspects (mitigation, monitoring and capacity development), the ESMP provides for: a) a timetable for the implementation of project activities, with milestones and in coordination with overall project implementation plans; and b) estimates of capital and recurring costs and sources of funding for the implementation of the ESMP. These figures are also included in the general cost tables for the project.

Integration of the ESMP with the project

The borrower's decision to implement the project and the Bank's decision to support it are driven in part by the assumption that the ESMP is being effectively implemented. The plan will accurately describe the individual mitigation and monitoring measures and the responsibilities of the institutions; the plan should be integrated into the overall planning, design, budgeting and implementation of the project. This integration is achieved by

incorporating the ESMP into the project so that the ESMP is provided with funding and oversight along with other project components.

9.2. Environment and Social Action Plan Format

The plan divides the project cycle into three phases: construction, operation and decommissioning. At each stage, the preparation team determines any significant environmental impacts that are expected based on the analysis carried out in the context of the environmental assessment. For each impact, mitigation measures should be identified and listed. Costs for mitigation actions are calculated, disaggregated by estimates for installation (investment costs) and operation (recurrent costs). The ESMP format also provides for the identification of institutional responsibilities for the “installation” and operation of mitigation devices and techniques.

According to the ESIA, the ESMP format should include the following items:

- project implementation phase (construction, operation, decommissioning (last if necessary), environmental impact (broken down by environmental and social subdivisions), mitigation measures, institutional responsibility, costs and expenses).

The approximate format of the ESMP is given in Appendix 7:

Environmental Protection Plan Format

Fase	Affecting the environment	Mitigation measures	Costs		Institutional responsibility		Note
			Install.	Exploit.	Install.	Exploit.	
Construction	•	•					
Exploitation	•	•					
Decommissioning	•	•					

In compiling this ESIA report, preliminary ESMPs have been developed for each of the three properties, which will be revised and updated during the development of the final design for these properties. In particular, these draft ESMPs will be supplemented with a cost / cost column (for later inclusion in the bill of quantities and cost estimates), as well as additional lines on additional identified risks and impacts during environmental screening and public consultations.

9.2.1. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR RESTORATION OF THE KHULBUK FORTRESS Republic of Tajikistan, Khatlon region, Vose district, Guliston jamaot

Environmental and social elements	Impact and risks	Proposed mitigation measures	Institutional responsibility for implementing measures (cost of mitigation measures)	Monitoring
Physical environment				
Noise	During the period of restoration work, the sources of intermittent noise will be operating mechanisms (engines of construction equipment). Also, there may be temporary increases in noise levels along material supply routes.	The use of noise protection equipment is not envisaged; the equipment will be equipped with a silencer. The use of vibration devices that comply with standards, as well as vibration and noise protection devices. The equipment will work only from 8 am to 6 pm, at night they will not work. During work, covers of motors, generators, air compressors and other drive mechanisms must be closed; equipment should be located as far as possible from living quarters. Thus, on the territory of the restoration, the sound level during the restoration period, when working only during the	Criteria / specifications for entering into tender and contractual and documentation. Not considered as a separate expense item.	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.

		daytime, will not exceed the value recommended by the standard norms for the maximum equivalent sound established by the norms of the Republic of Tajikistan. During operation, there are no sources of noise generation.		
Pollution soil and water	Contamination of soil and water with oil products from the use of technology. During the construction period, the impact is accompanied by the following type of work: -excavation; - work of construction equipment; -generation of household waste.	The basic proper construction norms and standards applied during construction are established by the Law of the Republic of Tajikistan "On architectural, urban planning and construction activities" dated March 20, 2008, No. 380, Chapter 2, Articles 5,6,7. Law of the Republic of Tajikistan "On Environmental Protection" dated June 22, 2011. No. 485, Daily checks of equipment for oil leaks; a ban on washing cars at the construction site.	Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	
Atmospheric air (dusty)	Dust build-up during restoration work will be minor and temporary. Emissions of pollutants into the atmosphere are expected: - from vehicles -when leveling the subgrade	Dust suppression measures and appropriate household measures such as spraying with water to prevent dust and using the shed and fencing of the construction site. Use of masks, gloves and work wear. Limiting vehicle speed and selecting suitable transport routes to minimize exposure to dust-sensitive receptors. Equipment for vehicles transporting bulk materials, removable awnings. Delivery of cement to construction sites is carried out only in packaged sealed bags. The specified equipment is ordered only for the period of performance of certain operations and is not constantly on the construction site. It is not allowed to operate vehicles with a defective fuel system that exceeds the emission standards. Incineration of construction and household waste at the work site is prohibited. It is necessary to monitor the cleanliness of the surrounding area to prevent the ingress of construction debris in order to minimize dust and pollution. Household and construction waste must be removed from the construction site and disposed of in a licensed sanitary landfill or similar landfill. Emissions are temporary and short-lived. Thus, emissions of pollutants during the construction period will not exceed the MPC. The average daily level of MPC is 0.15, the maximum one-time is 0.5.	Criteria / specification and for entry into tender and contract documents. Irrigation of unpaved roads with water (wet dust suppression of on-site roads and sites) is considered as a separate expense item.	
Water resources	Violation of surface runoff	The construction works will have a negligible impact on surface waters. Leakage of fuel and oil from vehicles should be avoided; Strictly comply with the rules and regulations of sanitation, i.e. human waste from construction camps should not pollute water sources. Work areas with machines, concrete mixers and fuel tanks should be located outside the water protection zones.	Criteria / specification and for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.
Construction garbage	Contamination of adjacent territories, soil and water resources	Sorting of all types of waste, reuse and recycling, if possible. Disposal of waste that cannot be reused or recycled; collection and disposal of waste to separate dumps in cooperation with a local waste disposal company on the basis of a signed contract, prohibition of open burning of waste. Mineral waste from construction and dismantling works should be separated from general and organic waste, liquid and chemical waste should be sorted and stored in special	Criteria / specification and for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment

		containers. All waste collection and disposal documents must be properly maintained as evidence of proper waste disposal on site. For household waste, the installation of containers for waste collection and temporary storage and the regular disposal of waste from the construction site to an officially approved landfill.		
Site works and construction	Health and safety	Limit outside workers by giving locals priority in employment. External workers hired must have proper medical examination prior to employment. New workers will be properly briefed on the basics of how common communicable and contagious diseases are spread, symptoms and effects. The Contractor will retain a physician who could be contacted or would give the personnel regular check up. Provide adequate health care facilities within construction sites. Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. Initial health screening of the laborers coming from outside areas. Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work. Provide HIV awareness programming, including STI (sexually transmitted infections) and HIV information, education and communication for all workers on regular basis. Complement educational interventions with easy access to condoms at campsites as well as voluntary counseling and testing. Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellent sprays during monsoon. Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices	Contractor Organization Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.
Labor protection of workers, safety precautions fire safety	Work-related injuries	All work should be carried out using safety techniques and disciplines to minimize the negative impact of restoration processes on the population and the environment. Personal protective equipment must comply with safety standards (mandatory use of protective helmets, masks, if necessary, belts and shoes). The contractor must provide workers with: <ul style="list-style-type: none"> • drinking water during working hours; • portable dry closets with a team of more than 8 people; • medical kits for each construction site to provide first aid to medical attention; • anti-noise earplugs, observance of all fire safety requirements. Use of serviceable equipment tools. Compliance with the approved instructions on labor protection in accordance with the Labor Code of	Contractor Organization Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.

		R.T. dated July 23, 2016 No. 1329. The sites will be equipped with appropriate information boards and signs informing workers about the rules and norms of work.		
Local safety		All work should be carried out using safety methods and disciplines to minimize the negative impact of construction and restoration work on nearby settlements. It is necessary to install safety warning signs and fences, information boards about the ongoing project activities. Informing local residents about the schedule and duration of construction works. Work must be carried out during the daytime at certain hours. Regulation of the movement of equipment for the unimpeded and safe internal movement of the local population. Local authorities and the local population will be appropriately informed about the upcoming design work. Code of conduct for workers should be established and followed; The contractor must respect and observe local customs and traditions;		
Procedure in case of discovery of finds of cultural value	Damage and degradation of structures at the site	Since restoration work is carried out on the territory of a historical site, the rules enshrined in the Law of the Republic of Tajikistan dated March 3, 2006 No. 178 "On the protection and use of objects of historical and cultural heritage"		Contractor representative
Organization of the construction site and dismantling of the site after completion of construction work	Elimination of possible violations	Planning for the elimination of negative impacts on the adjacent and neighboring territories (including planning to ensure appropriate traffic management on access roads to the site). Site fencing or access to the site with appropriate safety signs. Upon completion of the work, the site will be restored to its previous state, and all waste will be removed. All equipment must also be removed from the site.	Negligible costs Contractor costs specifications in project documentation	Contractor representative
Worker safety	Work-related injuries	Compliance with safety regulations; All work should be carried out using safety measures using personal protective equipment (protective helmets, gloves, masks, belts, if necessary, and shoes); Sites should be equipped with information boards and signs informing workers about building rules and regulations. Compliance with safety measures and the creation of sanitary conditions. Safety instructions. Prior to commencement of construction work, all contractor personnel must complete an occupational health and safety training course. Construction camps should be provided with a first aid kit.	Contracting organization	
Construction sites (temporary)	Disputes with the local population	Fencing of the restoration site; Ensuring proper management of transport on access roads to the site; Installation of information boards and safety signs;	Contracting organization. Criteria and specifications for entering into tender and contract documents	

		<p>The contractor should dispose of unnecessary materials only in the designated areas;</p> <p>After the completion of the restoration, the site must be dismantled, with the corresponding restoration of the territory to its original state (waste removal, equipment removal).</p>		
Human community, poverty	Attracting labor force	Providing recommendations for contractors on attracting labor from the local population.	Contracting organization	
	Gender quota	When carrying out restoration work, women will be attracted to carry out light types of work: cooking, washing dishes, etc.	Contracting organization	
	Minors	Persons under the age of 18 will not be involved in the restoration work.	Contracting organization	
Gender Issues	<p>Women's privacy</p> <p>Sexual Harrassment</p> <p>Equal Pay for Equal Work</p> <p>Non-discrimination in hiring</p>	<p>The Contractor must establish policies in consultation with local elders/authorities</p> <ul style="list-style-type: none"> - Shall ensure all the construction workers follows the following code of conduct: - All workers are strictly forbidden to establish any kind of relationship with local women bring any un-related women to the project site. - All workers should avoid sexual harassment and child abuse. 	Contracting organization	
Work Force	<p>Potential job creation for local residents</p> <p>Labour related risks</p>	<p>Income and employment conditions must be agreed to by the Contractor and local workers</p> <p>All contractors will be required to have a written contract with their workers materially consistent with the local legislation on labour relations, in particular following requirements on no child and forced labor.</p>	Contracting organization	
Child and pregnant labor	Affecting of child and pregnant labor	not hire children of less than 16 years of age and pregnant women or women who delivered a child within 8 preceding weeks, in accordance with the national Labor Laws	Contracting organization	
Aesthetics and landscape	Landscape changes will be made. New types of plants and trees will be planted. RAP should be prepared Executing company			
Land acquisition and involuntary resettlement	According to the information received from the client, relocation in all three project sites is not envisaged.			
Cultural heritage	Restoration work will be carried out at the historic site. Therefore, one should rely on the Law of the Republic of Tajikistan dated March 3, 2006 No. 178 "On the protection and use of objects of historical and cultural heritage". UNESCO Agreements in the field of conservation of natural and cultural heritage adopted by the Republic of Tajikistan.			
<p>The source of the recruitment of labor and the consequences of a possible inflow of labor will be closely monitored by the Executing company. Contractors involved in civil works will be encouraged to recruit the necessary manpower, whenever possible, at the local level. Workers hired outside the community where construction work will take place must comply with the Code of Conduct.</p> <p>The employee has the right to:</p> <ul style="list-style-type: none"> - a workplace equipped in accordance with the requirements of safety and labor protection; - provision of sanitary - household premises, means of individual and collective protection, special clothing in accordance with the requirements for safety and labor protection, as well as labor contract, agreement and collective agreements; - appeal to the authorized state body in the field of labor and social protection the population or its local authority to conduct a survey of labor conditions and labor protection at its workplace; - participation personally or through a representative in the verification and consideration of issues related to improvement of safety and labor protection conditions; - refusal to perform work in the event of a situation that poses a threat to his health or life, with a written notification of this to the immediate supervisor or employer; - education and training necessary for the safe performance of labor duties, in the manner prescribed by the legislation of the Republic of Tajikistan; - obtaining reliable information from the employer about working conditions, including the impact harmful or dangerous production factors, about the danger of occupational and other diseases, on personal protective equipment and sanitary and hygienic means, benefits and compensations, on the receipt of which in connection with this the employee has the right; - maintaining the average salary during the suspension of the organization's work due to non-compliance with labor safety and health requirements; 				

<p>- appeal against illegal actions or omissions of the employer in the field of safety and labor protection. The employee is obliged:</p> <ul style="list-style-type: none"> - immediately inform your immediate supervisor about every accident, what happened at work, signs of an occupational disease (poisoning), as well as about the situation, which poses a threat to the life and health of people; - accept the means of individual and collective protection provided by the employer, sanitary - hygiene products, special footwear and clothing, and use them for their intended purpose; - to comply with the prescriptions of medical institutions in order to introduce medical and health-improving measures if they are financed by the employer; - comply with the requirements of labor protection standards established by regulatory legal acts Republic of Tajikistan; - be trained in the rules and instructions on labor protection and methods of safe work, as well as on-the-job training and constant monitoring of knowledge of labor protection requirements. 				
Operation period				
Water resources	Threats to water quality Discharge of household and industrial waste	Strict observance of the requirements of the legislation of the Republic of Tajikistan on environmental protection by the local population and industrial enterprises.		
The soil	Increased soil erosion	Ensuring control over water sources and preventing soil erosion		

9.2.2. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR RESTORATION OF THE KHODJA MASHKHAD MAUSOLEUM Republic of Tajikistan, Khatlon region, Shaartuz district, Talbak Sadridin jamoat

Environmental and social elements	Impact and risks	Proposed mitigation measures	Institutional responsibility for implementing measures (cost of mitigation measures)	Monitoring
Construction period				
Physical environment				
Noise	During the period of restoration work, the sources of intermittent noise will be operating mechanisms (engines of construction equipment). Also, there may be temporary increases in noise levels along material supply routes.	The use of noise protection equipment is not envisaged; the equipment will be equipped with a silencer. The use of vibration devices that comply with standards, as well as vibration and noise protection devices. The equipment will work only from 8 am to 6 pm, at night they will not work. During work, covers of motors, generators, air compressors and other drive mechanisms must be closed; equipment should be located as far as possible from living quarters. Thus, on the territory of the restoration, the sound level during the restoration period, when working only during the daytime, will not exceed the value recommended by the standard norms for the maximum equivalent sound established by the norms of the Republic of Tajikistan. During operation, there are no sources of noise generation.	Criteria / specifications for entering into tender and contractual and documentation. Not considered as a separate expense item.	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.
Pollution soil and water	Contamination of soil and water with oil products from the use of technology. During the construction period, the impact is accompanied by the following type of work: -excavation; - work of construction equipment; -generation of household waste.	The basic proper construction norms and standards applied during construction are established by the Law of the Republic of Tajikistan "On architectural, urban planning and construction activities" dated March 20, 2008, No. 380, Chapter 2, Articles 5,6,7. Law of the Republic of Tajikistan "On Environmental Protection" dated June 22, 2011. No. 485, Daily checks of equipment for oil leaks; a ban on washing cars at the construction site.	Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	

Atmospheric air (dusty)	Dust during restoration work will be minor and temporary. Emissions of pollutants into the atmosphere are expected: - from vehicles -when leveling the subgrade	Dust suppression measures and appropriate household measures such as spraying with water to prevent dust and using the shed and fencing of the construction site. Use of masks, gloves and work wear. Limiting vehicle speed and selecting suitable transport routes to minimize exposure to dust-sensitive receptors. Equipment for vehicles transporting bulk materials, removable awnings. Delivery of cement to construction sites is carried out only in packaged sealed bags. The specified equipment is ordered only for the period of performance of certain operations and is not constantly on the construction site. It is not allowed to operate vehicles with a defective fuel system that exceeds the emission standards. Incineration of construction and household waste at the work site is prohibited. It is necessary to monitor the cleanliness of the surrounding area to prevent the ingress of construction debris in order to minimize dust and pollution. Household and construction waste must be removed from the construction site and disposed of in a licensed sanitary landfill or similar landfill. Emissions are temporary and short-lived. Thus, emissions of pollutants during the construction period will not exceed the MPC. The average daily level of MPC is 0.15, the maximum one-time is 0.5.	Criteria / specifications and for entry into tender and contract documents. Irrigation of unpaved roads with water (wet dust suppression of on-site roads and sites) is considered as a separate expense item.	
Water resources	Violation of surface runoff	The construction works will have a negligible impact on surface waters. Leakage of fuel and oil from vehicles should be avoided; Strictly comply with the rules and regulations of sanitation, i.e. human waste from construction camps should not pollute water sources. Work areas with machines, concrete mixers and fuel tanks should be located outside the water protection zones.	Criteria / specifications and for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.
Construction garbage	Contamination of adjacent territories, soil and water resources	Sorting of all types of waste, reuse and recycling, if possible. Disposal of waste that cannot be reused or recycled; collection and disposal of waste to separate dumps in cooperation with a local waste disposal company on the basis of a signed contract, prohibition of open burning of waste. Mineral waste from construction and dismantling works should be separated from general and organic waste, liquid and chemical waste should be sorted and stored in special containers. All waste collection and disposal documents must be properly maintained as evidence of proper waste disposal on site. For household waste, the installation of containers for waste collection and temporary storage and the regular disposal of waste from the construction site to an officially approved landfill.	Criteria / specifications and for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment

<p>Labor protection of workers, safety precautions fire safety</p>	<p>Work-related injuries</p>	<p>All work should be carried out using safety techniques and disciplines to minimize the negative impact of restoration processes on the population and the environment. Personal protective equipment must comply with safety standards (mandatory use of protective helmets, masks, if necessary, belts and shoes). The contractor must provide workers with:</p> <ul style="list-style-type: none"> • drinking water during working hours; • portable dry closets with a team of more than 8 people; • medical kits for each construction site to provide first aid to medical attention; • anti-noise earplugs, observance of all fire safety requirements. <p>Use of serviceable equipment tools. Compliance with the approved instructions on labor protection in accordance with the Labor Code of R.T. dated July 23, 2016 No. 1329. The sites will be equipped with appropriate information boards and signs informing workers about the rules and norms of work.</p>	<p>Contractor Organization Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item</p>	<p>The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.</p>
<p>Site works and construction</p>	<p>Health and safety</p>	<p>Limit outside workers by giving locals priority in employment. External workers hired must have proper medical examination prior to employment. New workers will be properly briefed on the basics of how common communicable and contagious diseases are spread, symptoms and effects. The Contractor will retain a physician who could be contacted or would give the personnel regular check up. Provide adequate health care facilities within construction sites. Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. Initial health screening of the laborers coming from outside areas. Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work. Provide HIV awareness programming, including STI (sexually transmitted infections) and HIV information, education and communication for all workers on regular basis. Complement educational interventions with easy access to condoms at campsites as well as voluntary counseling and testing. Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellent sprays during monsoon. Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at</p>	<p>Contractor Organization Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item</p>	<p>The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.</p>

		strategic locations within the camps containing messages on best hygienic practices		
Local safety		<p>All work should be carried out using safety methods and disciplines to minimize the negative impact of construction and restoration work on nearby settlements. It is necessary to install safety warning signs and fences, information boards about the ongoing project activities.</p> <p>Informing local residents about the schedule and duration of construction works.</p> <p>Work must be carried out during the daytime at certain hours. Regulation of the movement of equipment for the unimpeded and safe internal movement of the local population. Local authorities and the local population will be appropriately informed about the upcoming design work. Code of conduct for workers should be established and followed; The contractor must respect and observe local customs and traditions;</p>		
Procedure in case of discovery of finds of cultural value	Damage and degradation of structures at the site	Since restoration work is carried out on the territory of a historical site, the rules enshrined in the Law of the Republic of Tajikistan dated March 3, 2006 No. 178 "On the protection and use of objects of historical and cultural heritage"		Contractor representative
Organization of the construction site and dismantling of the site after completion of construction work	Elimination of possible violations	Planning for the elimination of negative impacts on the adjacent and neighboring territories (including planning to ensure appropriate traffic management on access roads to the site). Site fencing or access to the site with appropriate safety signs. Upon completion of the work, the site will be restored to its previous state, and all waste will be removed. All equipment must also be removed from the site.	Negligible costs Contractor costs specifications in project documentation	Contractor representative
Worker safety	Work-related injuries	<p>Compliance with safety regulations;</p> <p>All work should be carried out using safety measures using personal protective equipment (protective helmets, gloves, masks, belts, if necessary, and shoes); Sites should be equipped with information boards and signs informing workers about building rules and regulations.</p> <p>Compliance with safety measures and the creation of sanitary conditions. Safety instructions.</p> <p>Prior to commencement of construction work, all contractor personnel must complete an occupational health and safety training course.</p> <p>Construction camps should be provided with a first aid kit.</p>	Contracting organization	

Construction sites (temporary)	Disputes with the local population	<p>Fencing of the restoration site;</p> <p>Ensuring proper management of transport on access roads to the site;</p> <p>Installation of information boards and safety signs;</p> <p>The contractor should dispose of unnecessary materials only in the designated areas;</p> <p>After the completion of the restoration, the site must be dismantled, with the corresponding restoration of the territory to its original state (waste removal, equipment removal).</p>	Contracting organization. Criteria and specifications for entering into tender and contract documents	
Human community, poverty	Attracting labor force	Providing recommendations for contractors on attracting labor from the local population.	Contracting organization	
	Gender quota	When carrying out restoration work, women will be attracted to carry out light types of work: cooking, washing dishes, etc.	Contracting organization	
	Minors	Persons under the age of 18 will not be involved in the restoration work.	Contracting organization	
Gender Issues	Women's privacy Sexual Harrassment Equal Pay for Equal Work Non-discrimination in hiring	<p>The Contractor must establish policies in consultation with local elders/authorities</p> <ul style="list-style-type: none"> - Shall ensure all the construction workers follows the following code of conduct: - All workers are strictly forbidden to establish any kind of relationship with local women bring any unrelated women to the project site. - All workers should avoid sexual harassment and child abuse. 	Contracting organization	
Increased Work Force	Potential job creation for local residents Labour related risks	<p>Income and employment conditions must be agreed to by the Contractor and local workers</p> <p>All contractors will be required to have a written contract with their workers materially consistent with the local legislation on labour relations, in particular following requirements on no child and forced labor.</p>	Contracting organization	
Child and pregnant labor	Affecting of child and pregnant labor	not hire children of less than 16 years of age and pregnant women or women who delivered a child within 8 preceding weeks, in accordance with the national Labor Laws	Contracting organization	
Aesthetics and landscape	Landscape changes will be made. New types of plants and trees will be planted.			
Land acquisition and involuntary resettlement	not planned because all work will be carried out on existing facilities will not affect land use. RAP should be prepared Executing company. According to the information received from the client, relocation in all three project sites is not envisaged.			
Cultural heritage	Restoration work will be carried out at the historic site. Therefore, one should rely on the Law of the Republic of Tajikistan dated March 3, 2006 No. 178 "On the protection and use of objects of historical and cultural heritage" UNESCO Agreements in the field of conservation of natural and cultural heritage adopted by the Republic of Tajikistan.			
<p>The source of the recruitment of labor and the consequences of a possible inflow of labor will be closely monitored by the Executing company. Contractors involved in civil works will be encouraged to recruit the necessary manpower, whenever possible, at the local level. Workers hired outside the community where construction work will take place must comply with the Code of Conduct.</p> <p>The employee has the right to:</p> <ul style="list-style-type: none"> - a workplace equipped in accordance with the requirements of safety and labor protection; - provision of sanitary - household premises, means of individual and collective protection, special clothing in accordance with the requirements for safety and labor protection, as well as labor contract, agreement and collective agreements; - appeal to the authorized state body in the field of labor and social protection <p>the population or its local authority to conduct a survey of labor conditions and labor protection at its workplace;</p>				

<ul style="list-style-type: none"> - participation personally or through a representative in the verification and consideration of issues related to improvement of safety and labor protection conditions; - refusal to perform work in the event of a situation that poses a threat to his health or life, with a written notification of this to the immediate supervisor or employer; - education and training necessary for the safe performance of labor duties, in the manner prescribed by the legislation of the Republic of Tajikistan; - obtaining reliable information from the employer about working conditions, including the impact harmful or dangerous production factors, about the danger of occupational and other diseases, on personal protective equipment and sanitary and hygienic means, benefits and compensations, on the receipt of which in connection with this the employee has the right; - maintaining the average salary during the suspension of the organization's work due to non-compliance with labor safety and health requirements; - appeal against illegal actions or omissions of the employer in the field of safety and labor protection. <p>The employee is obliged:</p> <ul style="list-style-type: none"> - immediately inform your immediate supervisor about every accident, what happened at work, signs of an occupational disease (poisoning), as well as about the situation, which poses a threat to the life and health of people; - accept the means of individual and collective protection provided by the employer, sanitary - hygiene products, special footwear and clothing, and use them for their intended purpose; - to comply with the prescriptions of medical institutions in order to introduce medical and health-improving measures if they are financed by the employer; - comply with the requirements of labor protection standards established by regulatory legal acts Republic of Tajikistan; - be trained in the rules and instructions on labor protection and methods of safe work, as well as on-the-job training and constant monitoring of knowledge of labor protection requirements. 				
Operation period				
Water resources	Threats to water quality Discharge of household and industrial waste	Strict observance of the requirements of the legislation of the Republic of Tajikistan on environmental protection by the local population and industrial enterprises.		
The soil	Increased soil erosion	Ensuring control over water sources and preventing soil erosion		

9.2.3. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN AT CHILUCHOR CHASHMA Republic of Tajikistan, Khatlon region, Nosiri Khusrav district, Istikloliyat jamoat

Environmental and social elements	Impact and risks	Proposed mitigation measures	Institutional responsibility for implementing measures (cost of mitigation measures)	Monitoring
Construction period				
Physical environment				
Noise	During the period of restoration work, the sources of intermittent noise will be operating mechanisms (engines of construction equipment). Also, there may be temporary increases in noise levels along material supply routes.	The use of noise protection equipment is not envisaged; the equipment will be equipped with a silencer. The use of vibration devices that comply with standards, as well as vibration and noise protection devices. The equipment will work only from 8 am to 6 pm, at night they will not work. During work, covers of motors, generators, air compressors and other drive mechanisms must be closed; equipment should be located as far as possible from living quarters. Thus, on the territory of the restoration, the sound level during the restoration period, when working only during the daytime, will not exceed the value recommended by the standard norms for the maximum equivalent sound established by the norms of the Republic of Tajikistan. During operation, there are no sources of noise generation.	Criteria / specifications for entering into tender and contractual and documentation. Not considered as a separate expense item.	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.
Pollution soil and water	Contamination of soil and water with oil products from the use of technology. During the construction period, the impact is accompanied by the following type of work:	The basic proper construction norms and standards applied during construction are established by the Law of the Republic of Tajikistan "On architectural, urban planning and construction activities" dated March 20, 2008, No. 380, Chapter 2, Articles 5,6,7. Law of the Republic of Tajikistan "On Environmental Protection"	Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	

	-excavation; - work of construction equipment; -generation of household waste.	dated June 22, 2011. No. 485, Daily checks of equipment for oil leaks; a ban on washing cars at the construction site.		
Atmospheric air (dusty)	Dust during restoration work will be minor and temporary. Emissions of pollutants into the atmosphere are expected: - from vehicles -when leveling the subgrade	Dust suppression measures and appropriate household measures such as spraying with water to prevent dust and using the shed and fencing of the construction site. Use of masks, gloves and work wear. Limiting vehicle speed and selecting suitable transport routes to minimize exposure to dust-sensitive receptors. Equipment for vehicles transporting bulk materials, removable awnings. Delivery of cement to construction sites is carried out only in packaged sealed bags. The specified equipment is ordered only for the period of performance of certain operations and is not constantly on the construction site. It is not allowed to operate vehicles with a defective fuel system that exceeds the emission standards. Incineration of construction and household waste at the work site is prohibited. It is necessary to monitor the cleanliness of the surrounding area to prevent the ingress of construction debris in order to minimize dust and pollution. Household and construction waste must be removed from the construction site and disposed of in a licensed sanitary landfill or similar landfill. Emissions are temporary and short-lived. Thus, emissions of pollutants during the construction period will not exceed the MPC. The average daily level of MPC is 0.15, the maximum one-time is 0.5.	Criteria / specifications and for entry into tender and contract documents. Irrigation of unpaved roads with water (wet dust suppression of on-site roads and sites) is considered as a separate expense item.	
Water resources	Violation of surface runoff	The construction works will have a negligible impact on surface waters. Leakage of fuel and oil from vehicles should be avoided; Strictly comply with the rules and regulations of sanitation, i.e. human waste from construction camps should not pollute water sources. Work areas with machines, concrete mixers and fuel tanks should be located outside the water protection zones.	Criteria / specifications and for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.
Construction garbage	Contamination of adjacent territories, soil and water resources	Sorting of all types of waste, reuse and recycling, if possible. Disposal of waste that cannot be reused or recycled; collection and disposal of waste to separate dumps in cooperation with a local waste disposal company on the basis of a signed contract, prohibition of open burning of waste. Mineral waste from construction and dismantling works should be separated from general and organic waste, liquid and chemical waste should be sorted and stored in special containers. All waste collection and disposal documents must be properly maintained as evidence of proper waste disposal on site. For household waste, the installation of containers for waste collection and temporary storage and the regular disposal of waste from the construction site to an officially approved landfill.	Criteria / specifications and for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment
Labor protection of workers, safety precautions fire safety	Work-related injuries	All work should be carried out using safety techniques and disciplines to minimize the negative impact of restoration processes on the population and the environment. Personal protective equipment must comply with safety standards (mandatory use of protective	Contractor Organization Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.

		<p>helmets, masks, if necessary, belts and shoes). The contractor must provide workers with:</p> <p>drinking water during working hours;</p> <p>portable dry closets with a team of more than 8 people;</p> <p>medical kits for each construction site to provide first aid to medical attention;</p> <p>anti-noise earplugs, observance of all fire safety requirements.</p> <p>Use of serviceable equipment tools. Compliance with the approved instructions on labor protection in accordance with the Labor Code of R.T. dated July 23, 2016 No. 1329. The sites will be equipped with appropriate information boards and signs informing workers about the rules and norms of work.</p>		
Site works and construction	Health and safety	<p>Limit outside workers by giving locals priority in employment. External workers hired must have proper medical examination prior to employment. New workers will be properly briefed on the basics of how common communicable and contagious diseases are spread, symptoms and effects. The Contractor will retain a physician who could be contacted or would give the personnel regular check up. Provide adequate health care facilities within construction sites. Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. Provide ambulance facility for the laborers during emergency to be transported to nearest hospitals. Initial health screening of the laborers coming from outside areas. Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work. Provide HIV awareness programming, including STI (sexually transmitted infections) and HIV information, education and communication for all workers on regular basis. Complement educational interventions with easy access to condoms at campsites as well as voluntary counseling and testing. Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellent sprays during monsoon. Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices</p>	Contractor Organization Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.
Local safety		<p>All work should be carried out using safety methods and disciplines to minimize the negative impact of construction and restoration work on nearby settlements. It is necessary to install safety warning signs and fences, information boards about the ongoing project activities.</p> <p>Informing local residents about the schedule and duration of construction works.</p> <p>Work must be carried out during the daytime at certain hours. Regulation of the movement of equipment for the unimpeded and safe internal movement of the local population. Local authorities</p>	Contractor Organization Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	The representative of the contractor is responsible for the implementation of measures to reduce the negative impact on the environment.

		and the local population will be appropriately informed about the upcoming design work. Code of conduct for workers should be established and followed; The contractor must respect and observe local customs and traditions;		
Procedure in case of discovery of finds of cultural value	Damage and degradation of structures at the site	Since restoration work is carried out on the territory of a historical site, the rules enshrined in the Law of the Republic of Tajikistan dated March 3, 2006 No. 178 "On the protection and use of objects of historical and cultural heritage"		Contractor representative
Organization of the construction site and dismantling of the site after completion of construction work	Elimination of possible violations	Planning for the elimination of negative impacts on the adjacent and neighboring territories (including planning to ensure appropriate traffic management on access roads to the site). Site fencing or access to the site with appropriate safety signs. Upon completion of the work, the site will be restored to its previous state, and all waste will be removed. All equipment must also be removed from the site.	Negligible costs Contractor costs specifications in project documentation	Contractor representative
Worker safety	Work-related injuries	<p>Compliance with safety regulations;</p> <p>All work should be carried out using safety measures using personal protective equipment (protective helmets, gloves, masks, belts, if necessary, and shoes); Sites should be equipped with information boards and signs informing workers about building rules and regulations.</p> <p>Compliance with safety measures and the creation of sanitary conditions. Safety instructions.</p> <p>Prior to commencement of construction work, all contractor personnel must complete an occupational health and safety training course.</p> <p>Construction camps should be provided with a first aid kit.</p>	Contracting organization	
Construction sites (temporary)	Disputes with the local population	<p>Fencing of the restoration site;</p> <p>Ensuring proper management of transport on access roads to the site;</p> <p>Installation of information boards and safety signs;</p> <p>The contractor should dispose of unnecessary materials only in the designated areas;</p> <p>After the completion of the restoration, the site must be dismantled, with the corresponding restoration of the territory to its original state (waste removal, equipment removal).</p>	Contracting organization. Criteria and specifications for entering into tender and contract documents	
Human community, poverty	Attracting labor force	Providing recommendations for contractors on attracting labor from the local population.	Contracting organization	
	Gender quota	When carrying out restoration work, women will be attracted to carry out light types of work: cooking, washing dishes, etc.	Contracting organization	
	Minors	Persons under the age of 18 will not be involved in the restoration work.	Contracting organization	
Gender Issues	Women's privacy Sexual Harrassment Equal Pay for Equal Work Non-discrimination in hiring	The Contractor must establish policies in consultation with local elders/authorities - Shall ensure all the construction workers follows the following code of conduct: - All workers are strictly forbidden to establish any kind of relationship with	Contracting organization	

		local women bring any un-related women to the project site. - All workers should avoid sexual harassment and child abuse.		
Increased Work Force	Potential job creation for local residents Labour related risks	Income and employment conditions must be agreed to by the Contractor and local workers All contractors will be required to have a written contract with their workers materially consistent with the local legislation on labour relations, in particular following requirements on no child and forced labor.	Contracting organization	
Child and pregnant labor	Affecting of child and pregnant labor	not hire children of less than 16 years of age and pregnant women or women who delivered a child within 8 preceding weeks, in accordance with the national Labor Laws	Contracting organization	
Aesthetics and landscape	Landscape changes will be made. New types of plants and trees will be planted.			
Land acquisition and involuntary resettlement	not planned because all work will be carried out on existing facilities will not affect land use. RAP should be prepared Executing company. According to the information received from the client, relocation in all three project sites is not envisaged.			
Cultural heritage	Restoration work will be carried out at the historic site. Therefore, one should rely on the Law of the Republic of Tajikistan dated March 3, 2006 No. 178 "On the protection and use of objects of historical and cultural heritage". UNESCO Agreements in the field of conservation of natural and cultural heritage adopted by the Republic of Tajikistan.			
<p>The source of the recruitment of labor and the consequences of a possible inflow of labor will be closely monitored by the Executing company. Contractors involved in civil works will be encouraged to recruit the necessary manpower, whenever possible, at the local level. Workers hired outside the community where construction work will take place must comply with the Code of Conduct.</p> <p>The employee has the right to:</p> <ul style="list-style-type: none"> - a workplace equipped in accordance with the requirements of safety and labor protection; - provision of sanitary - household premises, means of individual and collective protection, special clothing in accordance with the requirements for safety and labor protection, as well as labor contract, agreement and collective agreements; - appeal to the authorized state body in the field of labor and social protection <p>the population or its local authority to conduct a survey of labor conditions and labor protection at its workplace;</p> <ul style="list-style-type: none"> - participation personally or through a representative in the verification and consideration of issues related to improvement of safety and labor protection conditions; - refusal to perform work in the event of a situation that poses a threat to his health or life, with a written notification of this to the immediate supervisor or employer; - education and training necessary for the safe performance of labor duties, in the manner prescribed by the legislation of the Republic of Tajikistan; - obtaining reliable information from the employer about working conditions, including the impact harmful or dangerous production factors, about the danger of occupational and other diseases, on personal protective equipment and sanitary and hygienic means, benefits and compensations, on the receipt of which in connection with this the employee has the right; - maintaining the average salary during the suspension of the organization's work due to non-compliance with labor safety and health requirements; - appeal against illegal actions or omissions of the employer in the field of safety and labor protection. <p>The employee is obliged:</p> <ul style="list-style-type: none"> - immediately inform your immediate supervisor about every accident, what happened at work, signs of an occupational disease (poisoning), as well as about the situation, which poses a threat to the life and health of people; - accept the means of individual and collective protection provided by the employer, sanitary - hygiene products, special footwear and clothing, and use them for their intended purpose; - to comply with the prescriptions of medical institutions in order to introduce medical and health-improving measures if they are financed by the employer; - comply with the requirements of labor protection standards established by regulatory legal acts Republic of Tajikistan; - be trained in the rules and instructions on labor protection and methods of safe work, as well as on-the-job training and constant monitoring of knowledge of labor protection requirements. 				
Operation period				
Water resources	Threats to water quality Discharge of household and industrial waste	Strict observance of the requirements of the legislation of the Republic of Tajikistan on environmental protection by the local population and industrial enterprises.		
The soil	Increased soil erosion	Ensuring control over water sources and preventing soil erosion		

9.3 Monitoring

Environmental and social monitoring during the project implementation period is the responsibility of the executing company or a company specially hired to carry out environmental or social monitoring. This information allows the borrower and the Bank to assess the effectiveness of mitigation measures as part of project monitoring and, if necessary, make appropriate adjustments to the measures being taken. Thus, the ESMP defines the monitoring objectives and specifies the type of monitoring, as well as its relationship with the impacts assessed in this ESIA report and the mitigation measures described in the ESMP. In particular, the monitoring section of the ESMP provides: (a) specific description and technical details of mitigation measures, including parameters to be measured, monitoring methods to be applied, sampling locations, measurement frequency, sensitivity limits (as appropriate necessary), as well as identifying thresholds indicating the need for adjustments to (b) monitoring and reporting procedures to (i) ensure timely identification of conditions requiring specific mitigation measures, and (ii) provide information on progress and results to mitigate the impact.

A monitoring plan can be useful to track requirements, responsibilities and costs to monitor the implementation of the mitigation measures identified during the analysis. Like the ESMP, the project cycle is divided into three phases (construction, operation and decommissioning). The format proposed in the ESIA also includes a string for basic information, which is critical to ensure reliable and proper monitoring.

The key elements of the matrix are: • What exactly is being monitored? • Where is monitoring done? • How is the parameter tracked to ensure meaningful comparisons? • When or how often is monitoring necessary or most effective? • Why is the parameter being monitored (what does it tell us about the environmental impact)? In addition to these questions, it is useful to identify the costs associated with monitoring (both investment and current) and institutional responsibilities.

Format of environmental monitoring plan

Fase	What (Which parameter is to be monitored?)	Where (will the parameter be monitored?)	How (will the parameter be monitored?)	When (will the parameter be monitored?)	Why (will the parameter be monitored?)	Costs		Institutional responsibility	
						Installation	Exploitation	Installation	Exploitation
Initial condition									
Construction									
Exploitation									
Decommissioning									

As with the main document of the individual ESMPs, at the stage of this report, **preliminary plans for social and environmental monitoring** were developed **for each of the sites, which will be supplemented and expanded simultaneously with the development of the ESMP and as the design of each of the three sites is completed.**

9.3.1. Plan for monitoring the environment in the objects of rehabilitation work during the restoration of the fortress "HULBUK"

What parameter is to be monitored	Where will the monitoring be carried out	How will monitoring be carried out? Monitoring equipment type	When? (measurement frequency)	Monitoring cost	Institutional responsibility for monitoring	start date
Noise from transport, mechanisms	At the construction and restoration site	Portable sound level meters	During construction, operation and decommissioning stages	Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	Inspection of the construction and restoration site is carried out by the contractor's environmental specialist. Local environmental authorities will carry out state environmental supervision over the implementation of design solutions during construction	After the transfer of the object to the Contractor
Soil and water pollution	At the construction and restoration site	Visually	During construction, operation and decommissioning stages			
Atmospheric air	At the site of restoration	Visually	During construction, operation and decommissioning stages			
Transport (parking in special designated places, car wash)	On the construction site	Visually	During construction, operation and decommissioning stages			
Construction waste (waste disposal and storage)	On the construction site	According to plan	During construction, operation and decommissioning stages			

					and restoration work or during the reconstruction of facilities. Have the right to supervise in accordance with the established procedure after providing the relevant identification documents in accordance with environmental regulations, standards, environmental protection measures in the project area, local authorities	
Dismantling the construction site	On the construction site	Visually	During construction, operation and decommissioning stages			
Worker safety	On the construction site	Visually	During construction, operation and decommissioning stages			
Safety hazards	On the construction site	Visually	During construction, operation and decommissioning stages			
Environmental and Social Risks Management	On the construction site	Visually Using dedicated tools to measure the environment	During construction, operation and decommissioning stages			
Community Safety	On the construction site	Visually	During construction, operation and decommissioning stages			
Gender equality	On the construction site	Documented	During construction, operation and decommissioning stages			
Sexual harassment and violence	On the construction site	Book of complaints and suggestions	During construction, operation and decommissioning stages			
Monitoring the maturity of the cultural heritage	On the construction site	Visually	During construction, operation and decommissioning stages			

9.3.2. Plan of environmental monitoring in the objects of rehabilitation work during the restoration of the mausoleum of Khoja Mashhad

What parameter is to be monitored	Where will the monitoring be carried out	How will monitoring be carried out? Monitoring equipment type	When? (measurement frequency)	Monitoring cost	Institutional responsibility for monitoring	start date
Noise from transport, mechanisms	At the construction and restoration site	Portable sound level meters	During construction, operation and decommissioning stages	Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	Inspection of the construction and restoration site is carried out by the contractor's environmental specialist. Local environmental authorities will carry out state environmental supervision over the implementation of design solutions during construction and restoration work or during the reconstruction of facilities. Have the right to supervise in accordance with the established procedure after providing the relevant identification documents in accordance with environmental regulations, standards, environmental protection measures in the project area, local authorities	After the transfer of the object to the Contractor
Soil and water pollution	At the construction and restoration site	Visually	During construction, operation and decommissioning stages			
Atmospheric air	At the site of restoration	Visually	During construction, operation and decommissioning stages			
Transport (parking in special designated places, car wash)	On the construction site	Visually	During construction, operation and decommissioning stages			
Construction waste (waste disposal and storage)	On the construction site	According to plan	During construction, operation and decommissioning stages			

Dismantling the construction site	On the construction site	Visually	During construction, operation and decommissioning stages			
Worker safety	On the construction site	Visually	During construction, operation and decommissioning stages			
Safety hazards	On the construction site	Visually	During construction, operation and decommissioning stages			
Environmental and Social Risks Management	On the construction site	Visually Using dedicated tools to measure the environment	During construction, operation and decommissioning stages			
Community Safety	On the construction site	Visually	During construction, operation and decommissioning stages			
Gender equality	On the construction site	Documented	During construction, operation and decommissioning stages			
Sexual harassment and violence	On the construction site	Book of complaints and suggestions	During construction, operation and decommissioning stages			
Monitoring the maturity of the cultural heritage	On the construction site	Visually	During construction, operation and decommissioning stages			

9.3.3. Plan for monitoring the environment in the objects of rehabilitation work during the restoration of Chiluchashma

What parameter is to be monitored	Where will the monitoring be carried out	How will monitoring be carried out? Monitoring equipment type	When? (measurement frequency)	Monitoring cost	Institutional responsibility for monitoring	start date
Noise from transport, mechanisms	At the construction and restoration site	Portable sound level meters	During construction, operation and decommissioning stages	Criteria / specifications for entry into tender and contract documents. Not considered as a separate expense item	Inspection of the construction and restoration site is carried out by the contractor's environmental specialist. Local environmental authorities will carry out state environmental supervision over the implementation of design solutions during construction and restoration work or during the reconstruction of facilities. Have the right to supervise in accordance with the established procedure after providing the relevant identification documents in accordance with environmental regulations, standards, environmental protection measures in the project area, local authorities	After the transfer of the object to the Contractor
Soil and water pollution	At the construction and restoration site	Visually	During construction, operation and decommissioning stages			
Atmospheric air	At the site of restoration	Visually	During construction, operation and decommissioning stages			
Transport (parking in special designated places, car wash)	On the construction site	Visually	During construction, operation and decommissioning stages			
Construction waste (waste disposal and storage)	On the construction site	According to plan	During construction, operation and decommissioning stages			
Dismantling the construction site	On the construction site	Visually	During construction, operation and decommissioning stages			
Worker safety	On the construction site	Visually	During construction, operation and decommissioning stages			
Safety hazards	On the construction site	Visually	During construction, operation and decommissioning stages			
Environmental and Social Risks Management	On the construction site	Visually Using dedicated tools to measure the environment	During construction, operation and decommissioning stages			

Community Safety	On the construction site	Visually	During construction, operation and decommissioning stages			
Gender equality	On the construction site	Documented	During construction, operation and decommissioning stages			
Sexual harassment and violence	On the construction site	Book of complaints and suggestions	During construction, operation and decommissioning stages			
Monitoring the maturity of the cultural heritage	On the construction site	Visually	During construction, operation and decommissioning stages			

10. Public consultation

The overall purpose of such consultations is to document issues of concern to stakeholders, with particular attention to the planned activities of the project. The consultation meetings were organized mainly to accomplish two important tasks, namely: (1) to share information on the objectives of the project and proposed project activities with the participation of relevant stakeholder groups, and (2) to consult with stakeholders and document their concerns, with a special focus on the social impact of the proposed project activities.

The preparation of the project has been underway since June 2021 with the participation of various stakeholders in the project: representatives of the Khukumats of the pilot regions, including management, representatives of business structures, including individual entrepreneurs and representatives of legal entities, ordinary citizens living in the immediate vicinity of the facility. To date, the following types of stakeholder engagement activities have been carried out:

- Official and informal communication with representatives of public authorities at the local level;
- Formal and informal communication with institutions involved in project activities
- Meetings at the level of jamoats, rural communities, citizens living in the immediate vicinity of the project implementation site.

The protocols of public consultations for each of the objects are given in Appendix 7.

This section summarizes the results of consultation activities with the public, government agencies, commercial organizations and entrepreneurs.

10.1. Hulbuk. Meetings and consultations with key stakeholders:

date	Basic notes
03-04.06.21	Introductory meeting. No meetings with decision-makers were planned. Basic data collection on environmental issues of the site is provided.
14-16.07.21	<p>Meetings were held: with the head of the executive power apparatus of the Hukumat district of Vose Kurbonzoda Safarbek, tel: 8331123284; mob: 918673310, director of the "Khulbuk" complex Khodjaev Abdullo, tel: 908001708.</p> <p>The leadership of the public organization "Peshsaf" acquainted the director of the complex with the goals and objectives set for the research group. Design studies are aimed at improving landscape architecture, dividing cultural green areas, providing the necessary lighting for the outer and inner parts of the site. The creation of spaces for private economic activities such as cafes, restaurants and shops is under consideration.</p> <p>The director of the complex voiced the problems of the need to preserve the green spaces that now exist on the territory of the Khulbuk fortress. Access to drinking water is a critical issue. The lack of water is felt even in technical and irrigation issues. Near the museum is the village "Mekhrobod" and the only well of the 70s of the last century is used by the southern part of the villagers. Process water flows by gravity.</p> <p>From the point of view of technical devices, the fortress in ancient times represented a unique complex of technologies for the sewerage system, drainage system, waste collection, and heating. Currently, there is an acute shortage of all of the above components. Waste collection is carried out without appropriate containers, while the land allocated for waste collection spoils the overall aesthetic appearance and litters the territory. In the northern part of the Khulbuk fortress, a groundwater pumping station was built at the expense of international assistance, but this station does not function due to lack of proper maintenance and financial resources. The management of the complex asks to restore the operation of the well and the transformer to provide the territory with irrigation water. We note that according to the data received from the specialists of the complex, part of the territory is approximately 1 meter higher than the level of the ancient part of the foundation of the fortress, which leads to the erosion of the foundation and erosion of the architectural structure. It is proposed to reduce the slope with the discharge of waste and irrigation water in the opposite direction from the fortress. Planting turf and moisture-consuming plants is especially dangerous. In the case of a choice in favor of planting grass and moisture-intensive plants, it is proposed to create small wastewater collectors along the edges of the complex with the necessary slope for drainage.</p> <p>To reduce water consumption at the facility, it is proposed to improve the territory with the help of point landings and the use of paving slabs.</p> <p>The arrangement of toilets is extremely important in the design of the improvement of the complex. The local staff at the complex sees a need for toilets based on local experience - cesspools. Our vision of this issue is different. Improvement is needed taking into account the installation of autonomous sewers, a system in which sewage drains are cleaned from beginning to end. The discharged water does not need to be further purified, it is sent directly into the reservoir or used for technical purposes. This is achieved thanks to aerobic treatment technology.</p> <p>Another problem is the division of the complex, consisting of the architectural part of the fortress and the museum, by the A235 highway. More than 1000 large and small cars pass through it every day. Noise, especially vibration, gradually negatively affects the state of the architectural building, and is also a limitation for the unification of the complex into a single infrastructure. Moving the road above the ground or underground, according to the head of the complex, will not solve the problem; the road needs to be moved in a different direction. In our opinion, the opinion of specialists in road construction and the possible impact of the construction of an aboveground or underground structure on the vibration level is needed. In any case, moving the road in a different direction is not economically viable.</p> <p>From a social point of view, it is necessary to consider the issue of transferring a part of residential settlements from the proposed area of improvement, taking into account the protection of the rights and interests of citizens. It is also necessary to consider the issue of involving the local population in the process of creating commercial projects (start-ups). Ideas from the local population: creation of a workshop for weavers, for the revival of glassworks, for working with clay and leather, as well as with metal.</p>
02-03.08.21	Conducting public consultations with stakeholders in Hulbuk urban settlement. Meetings were held with entrepreneurs and local residents. The goals and objectives of the project are explained in more detail, the motives of social involvement of the local population are clarified.

11-13.08.21	The collection of signatures of the protocol of public hearings on the construction / reconstruction of the facility was carried out, signatures of all interested parties were collected, including representatives of the Hukumat of the district, entrepreneurs and ordinary citizens. Protocol and signatures below.
23-24.08.21	The final collection of data on the flora and fauna of the area has been improved.

10.2. Khoja Mashhad. Meetings and consultations with key stakeholders:

date	Basic notes
01-02.06.21	Introductory meeting. No meetings with decision-makers were planned. Basic data collection on environmental issues of the site is provided.
21-23.07.21	<p>Identification of environmental and social problems in the Shaartuz area, Khoja Mashhad site. Meetings were held: Marat Tagayev, chairman of Sayed jamoat Nasredinov tel: 934068666, deputy chairman of Sayed jamoat Kholmatova Istatmo, tel: 933274545, Azimov Davlatmurod, assistant chairman of Sayed jamoat, tel: 937279738, Sharipova Barno, assistant guard 935041184 (son's number from Dushanbe) Azimov Muzafar, teacher from the Pedagogical University in Dushanbe.</p> <p>The meeting was held at the level of the Chairman of the Shaartuz region and the activity of the expert group was approved. A representative of the jamoat was assigned to work together. The leadership of the public organization "Peshsaf" acquainted the leadership of the jamoat and residents of nearby settlements of the complex with the goals and objectives set for the research group. Design studies are aimed at improving landscape architecture, dividing cultural green zones, providing the necessary lighting for the outer and inner parts of the site, moving the burials that are located on the territory of the complex. The creation of spaces where private economic activity will take place is being considered, such as cafes, restaurants, private hostel / guest house, shops.</p> <p>The complex is managed by local residents, who independently maintain the property, including the use of land for agricultural needs. Access to drinking water on the territory of the site is limited, pumping with a hand pump is carried out due to outdated technology. Water goes into the ground without proper drainage. This pump is the cause of soil erosion, it must be urgently dismantled, because it is located inside the complex.</p> <p>A feature of the complex is the presence of burials both inside the madrasah and outside its territory. The burials inside the Khoja Mashhad are an object of religious worship, but the condition of the graves leaves much to be desired. The work carried out on the reconstruction of Khoja Mashhad in the early 2010s led to more disastrous consequences - leakage of a part of the ceiling of the complex, a slow process of erosion of the soil and clay floor, the foundation of the structure, as well as raising salt from the ground. On the front part of the courtyard, there are several (up to 8 burials, possibly more, since some burials could have disappeared) burials that have relatives. An oral conversation with relatives showed that everyone agrees to the transfer of burials to the backyard closer to the site newly designated for the cemetery, except for one burial of a local scientist. It is required to carry out written approvals with relatives, as well as conduct a discussion with a dissenting family or leave the scientist's grave unchanged.</p> <p>There is no sewerage system in Khoja Mashhad. There are no toilets. Wastewater poses a threat to flooding the area. Saline plants, which are constantly being fought, are a particular problem. There is no waste generation and collection system. The area from the front is used for agricultural purposes. There is a need to transfer fruit trees from the territory without damaging the root system. The rest (barren) trees are of little value and can be cut down or relocated in agreement with the local authorities. It is required to create a water supply system for the complex based on the installation of a submersible pump with mechanical water purification, the creation of a toilet based on a septic tank, cleaning of the collector-drainage system to lower the groundwater level.</p> <p>The arrangement of toilets is extremely important in the design of the improvement of the complex. The local staff at the complex see the need for toilets based on local experience - cesspools. Our vision of this issue is different. Improvement is needed taking into account the installation of autonomous sewers, a system in which sewage drains are cleaned from start to finish. The discharged water does not need to be further purified, it is sent directly to the collector or used for technical purposes. This is achieved thanks to aerobic treatment technology.</p> <p>Access to the complex is extremely limited for two reasons - the lack of signposts on the road, starting with the fork in the road in Shaartuz, ending with the quality of the road in the makhalla itself, where the historical complex is located. This restriction can significantly affect the access of visitors and tourists to the historical site. The research team sees the need to indicate in the design, the installation of signs, as well as the rehabilitation of a part of the road from the entrance to the jamoat to the historical site. It also requires the transfer of a small irrigation ditch, which flows through the territory of the historical complex to another place.</p> <p>The relocation of residential properties on the territory of the proposed restoration of the territory is not required, except for the demolition of the old toilet, which blocks access to the complex from the north side. The local population, which are basically migrants, are prohibited from entering the territory of the Russian Federation. The male part of the population asks companies that will participate in the improvement of the territory to attract them as a specialized labor force to improve the socio-economic situation of families located near the territory. There is also a need to train personnel on the basis of local school personnel as guides for tourists in the national, English and Russian languages. It is also necessary to consider the issue of involving the local population in the process of creating commercial projects (start-ups). Ideas from the local population: the creation of a workshop for weavers, for the revival of workshops for working with wool, for working with clay and leather, as well as with metal.</p>
04-06.08.21	Conducting public consultations with stakeholders in Sayed jamoat. Meetings were held with entrepreneurs and local residents. The goals and objectives of the project are explained in more detail, the motives of social involvement of the local population are clarified.
16-17.08.21	The collection of signatures of the protocol of public hearings on the construction / reconstruction of the facility was carried out, signatures of all interested parties were collected, including representatives of the Hukumat of the district, entrepreneurs and ordinary citizens. Protocol and signatures below.
25-27.08.21	The final collection of data on the flora and fauna of the area has been improved.

10.3. Chilu Chor Chashma. Meetings and consultations with key stakeholders:

date	Basic notes
07-09.06.21	Introductory meeting. No meetings with decision-makers were planned. Basic data collection on environmental issues of the site is provided.
14-16.07.21	<p>Identification of environmental and social problems in the Nosiri Khisrav area, Chilu Chor Chashma facility. Meetings were held: Nishonzoda Davron, chairman of the district Nosiri Khisrav, Umidbek Boboev, public organization "Rushdi Dier", as well as local staff of the historical and tourist complex 44 Chashma Tagaymurodov Shaimardon and Odil.</p> <p>A meeting was organized and held at the level of the head of the district Nosiri Khisrav Nishonzoda Davron, where the goals and objectives of the modern and aesthetic development of the 44 Chashma complex were discussed with the involvement of all parties, respect for the rights and legitimate interests of the owners of the complex without prejudice to the ecological well-being of the territory.</p>

	<p>The Chilu Chor Chashma complex belongs to the cotton processing plant of the Shaartuz region, is a place of recreational recreation for the population of the Kabodien, Nosiri Khusrav and Shaartuz districts. The place has a spring of clean water. Water samples were taken to determine the purity of drinking water. The object is located on the right bank of Kafirigan, 12 kilometers west of Shaartuz, on the territory of the Istiklol jamoat, in Nosiri Khusrav district of Khatlon region. One of the most wonderful freshwater springs. From the foot of a small hill, five large springs gush out, which split into 39 smaller ones. The water of the springs forms a channel 12-13 meters wide, in which "sacred" fish (various species of the Marinka genus), as well as trout, live. The source is known to the residents of Tajikistan and neighboring Uzbekistan, and they often come here in the summer. Those who visit the spring pray, bathe, bathe (the canal is a bathing place for men and a separate closed area for women) and offer sacrifices. Water from 17 springs is considered healing. Plane trees and poplars grow on the territory of the spring, there is a large orchard. Above the source there is a small hill with a small mausoleum, an object of veneration for Muslims. According to local legends, a saint by the name of Kamar Bobo is buried in it, who was Ali's groom (599-661) and looked after his mule Duldul. Nearby are the graves of four more unknown saints. In Soviet times, an inter-collective farm rest house for cotton growers and milkmaids was organized on the site of the mazar.</p> <p>The peculiarity of the complex is the presence of a fresh water source, which is used by the inhabitants for sacred water. The waters of the source are constantly littered due to the rather huge influx of tourists and vacationers. During the season, their number can reach up to 0.3 million people. Littering of water sources occurs downstream of the spring. According to local ecologists, this leads to a load on the collector and drainage system, pollution of the source waters, which are used by local residents as drinking water.</p> <p>There is no sewerage system on the territory of the Chilu Chor Chashma complex. There are no toilets. The arrangement of toilets is extremely important in the design of the improvement of the complex. The local staff at the complex see the need for toilets based on local experience - cesspools. Our vision of this issue is different. Improvement is needed taking into account the installation of autonomous sewers, a system in which sewage drains are cleaned from start to finish. The discharged water does not need to be further purified, sent directly to the collector system of the area for irrigation, or used for technical purposes. This is achieved thanks to aerobic treatment technology.</p> <p>The biggest problem of the complex is access roads and an uncomfortable parking lot. 100-150 meters of roads require complete rehabilitation. Entry must be controlled. Improvement of the car park for passenger and route transport should be provided. It is also possible to set up special points for the sale of commercial goods, as well as souvenirs.</p> <p>On the territory of the complex itself, we see the need to limit bathing in the spring from the beginning to the end of the territory of Chilu Chor Chashma. This is due to a number of factors, such as the preservation of the Red Book fish species, stopping littering of the spring waters downstream (requires the installation of catching nets for waste), and limiting water intake (alternatively, selling water in special bottled containers with purification on a commercial basis). As an alternative to using the waters of the spring - the construction of a water park for up to 5,000 visitors, which will create up to 200-500 jobs during the season, taking into account the development of entrepreneurship and folk art. It is also necessary to provide for the construction of a prayer house.</p> <p>Rehabilitation of the road that leads to the top of the burials is required. It is not possible to foresee commercial points at the top due to tradition.</p> <p>Involving the local population in business development is not a difficult process, since most businessmen live off this complex. It is necessary to pay attention to the possibility of folk handicrafts entering the goods market on the territory of this complex. There are people who are interested in receiving grants for the development of start-ups based on weaving, felt, pottery, as well as the development of iron processing.</p>
09-10.08.21	Conducting public consultations with stakeholders, including entrepreneurs from Nosiri Khusrav and Shaartuz. Meetings were held with entrepreneurs and local residents. The goals and objectives of the project are explained in more detail, the motives of social involvement of the local population are clarified.
18-20.08.21	The collection of signatures of the protocol of public hearings on the construction / reconstruction of the facility was carried out, signatures of all interested parties were collected, including representatives of the Hukumat of the district, entrepreneurs and ordinary citizens. Protocol and signatures are given below.

11. Budget and resources

The costs of implementing social and environmental management plans are part of the overall budget planning to be planned by the Customer. The design and estimate documentation is based on the calculation of the costs of environmental protection measures during construction / rehabilitation works, it is indicated in US dollars in order to prevent exchange rate differences.

Figure 24. Estimated Cost of EMP Implementation and Environmental Impact Mitigation Measures in Hulbuk District (US \$)

Description	unit of measurement	Quantity	USD exchange rate USA	USD amount
Environmental and social protection				
Flushing of transport and construction equipment		When the vehicle leaves the facility		Should be included in construction work
Removal and storage of topsoil		At the beginning of the project		Should be included in construction work
Solid waste management		Weekly, as waste accumulates		Should be included in construction work

Potential arrangement of work and storage areas		As needed		Should be included in construction work
Dust suppression measures during dry periods (water irrigation)		Daily during dry periods		Should be included in construction work
Securing warehouses and equipment maintenance areas				Included in construction work
Contractor Safety Specialist				Included in the construction budget
Health and safety specialist from the Contractor				Included in the construction budget
Supervision specialist				Included in the construction budget
Measures to protect workers' health, including protection against HIV / AIDS and Covid-19	At the beginning of the project	1	200.00	200.00
First aid kit	Set	1	200.00	200.00
Individual protection means	Month	12	50.00	600.00
Installation of information and information signs, posters and stands	Once	1	500.00	500.00
Sexual Exploitation and Abuse and Sexual Harassment Training for Workers (SEA / SH) Prevention and response measures	Once	1	1000	1000
Construction Safety Training	Once	1	1000	1000
Training dedicated issues related to healthy lifestyle	Once	1	1000	1000
Interim mitigation and management measures per district				4,500.00
Interim mitigation and management measures for three districts	District	3	4,500.00	13.500.00

Figure 25. Estimated Baseline Monitoring Costs (US \$)

Description	unit of measurement	Quantity	USD exchange rate	Amount USD
			USA	USA
<u>Basic monitoring</u>				
Noise monitoring. Monthly metering during construction	Number of measurements	daily	Unit cost	150,00
Measurement of dust and air pollutants during construction	Number of measurements	daily	Unit cost	150,00
Collecting public opinion through the complaints and suggestions mechanism	Survey	Monthly		
Intermediate monitoring for one area				300,00
Intermediate monitoring for three areas	District	3	300,00	900,00

Total ESMP plus monitoring				14,400
-----------------------------------	--	--	--	---------------

Appendix 1. Information materials

Table 1. Air quality standards 2

#	Pollutant	Tajikistan Standard (mg / m3)
1.	Solid particles	0.150
2.	Nitric oxide (NO)	0.060
3.	Nitrogen dioxide (NO ₂)	0.040
4.	Sulfur (SO ₂)	0.050
5.	Carbon dioxide	3.000
6.	Ammonium	0.200

Appendix 2. Rules for handling asbestos-containing materials

1. Handling asbestos-containing material

Asbestos-containing material requires special safety measures during removal, transportation, storage and disposal. Asbestos-containing materials (slate) will be disposed of during rehabilitation works.

The main requirements of the ITO, the Asbestos Convention (1986) and Directive 2009/148 / EU of the European Union on the protection of workers from the risks associated with exposure to asbestos during work include the following:

- Development of a work plan to protect workers and ensure proper waste disposal prior to dismantling structures;
- The number of workers exposed to asbestos dust should be limited to the minimum possible;
- Provision of personal protective equipment, including work clothes and respiratory masks, if workers will be exposed to airborne asbestos fibers as a result of work;
- Presence of warning signs indicating the risk of asbestos-containing dust entering the air;
- The presence of double changing rooms and wash facilities to prevent dust from entering the street clothes;
- Training of workers about the dangers of asbestos on the health and safety of family members;
- Periodic medical examinations of employees;
- After completing the work, it is necessary to thoroughly clean the equipment, machines and the working area. Areas contaminated with asbestos fibers that cannot be cleaned must be moistened and disposed of appropriately. Adequate ventilation must be provided.

1. Personal protective equipment (PPE)

- When working with asbestos-containing products, the respiratory protection should be a half-face respirator (filter P2) for maximum two hours of work or a mask (FFP2) for longer work periods.
- Workers are required to wear suitable protective suits, boots without laces, heavy rubber gloves. Disposable protective suits must be disposed of after the end of the work shift; reusable protective suits must be cleaned regularly.
- Do not smoke, eat or drink in areas with asbestos-containing materials.
- Workers should have (as a minimum) a half face respirator with combination particle cartridges (P100). The use of disposable respirators is not allowed.
- Workers should check and clean their respirators before each use. Workers should be trained and trained in the use and limitations of respirators.
- Workers should choose their size that suits them. Workers will not be allowed to work without PPE.

1. The procedure for organizing repair work

The following procedures must be followed to remove asbestos-containing slate:

- Workers must wear a respirator, disposable coveralls (and other suitable PPE) prior to working with asbestos-containing materials.

- Upon completion of work at the facilities, workers, equipment and materials must be decontaminated. Only authorized work personnel in charge of the workplace and wearing proper PPE may enter the work area.
- A very important requirement: do not break the slate during dismantling, so that asbestos fibers do not form. All slabs must be stored exactly as they are.
- Use tools (and any other equipment used to dismantle asbestos-containing sheets) in accordance with the manufacturer's instructions, making sure that sufficient water is continuously supplied to prevent dust formation.

1. **Decontamination procedure: removal of small pieces of asbestos-containing materials**

- Locate all visible asbestos-containing materials and spray them lightly with water;
- Once the asbestos-containing materials are wet, take all visible asbestos-containing materials and place in a clear plastic bag;
- Insert a large label inside each plastic bag clearly indicating that the contents contain asbestos and are hazardous to human health and should not be handled;
- Securely secure plastic bags and place in labeled asbestos waste containers;
- At the end of the process, clean all shovels and any other used equipment with wet rags, and place rags in plastic bags and further into asbestos waste containers.

1. **Disposal**

- During the dismantling work, it is necessary not to break the asbestos-containing slate. Otherwise, asbestos fibers may be released into the air, which can be inhaled by workers. The dismantled slate should be removed in plastic bags in the same condition as it is.
- All asbestos-containing wastes must be double-bagged or double-wrapped with plastic wrap, with the appropriate international hazard warning labels displayed. For the transport of asbestos-containing material, it is necessary to ensure that no dust is emitted from the material. Cover containers or plastic wrap must be used for transport.
- All asbestos-containing materials must be taken to the AO landfill and buried at a depth of at least 2 meters.
- The disposal process must be documented by a commission Act and photographs of dismantling and disposal works must be attached. Copies of these documents should be sent to ARIS.

1. **Education**

The contractor should organize several training sessions within the ESMP in order to: a) raise the awareness of its employees about the dangers of contact with asbestos-containing materials (slate); b) ensuring the safety of health care workers involved in cleaning.

- The environmental / health and safety officer needs to train employees to mitigate the environmental and health and safety impacts of asbestos-containing materials at construction sites. The participants in the training should be those who play a key role in the rehabilitation of the site.
- The training includes conducting trainings on asbestos-containing materials, which cover:
 - Risks of exposure to asbestos-containing materials (recognition of asbestos, how asbestos can affect your health, additional risks of smoking, use and likely location of asbestos in buildings);
 - Responsibilities for handling asbestos-containing materials on a construction site (what work are you allowed to do by law; what the law requires of you; procedures to protect yourself; what methods to use; what equipment you need to do the job properly; how to select, use and monitor personal protective equipment; recognize and deal with other hazards, such as working at heights; decontamination of oneself and workplaces; emergency procedures and waste disposal);
 - ESMP activities;
 - Raising the awareness of the working staff.

Appendix 3. Preliminary Environmental Inspection Checklist

Part 1 (to be completed by the Project Facilitators)

1. **Subproject name and code:**

2. **A brief description of the subproject**, including: nature of the project, cost of the project, physical size, land area, location, ownership, presence of ongoing operations, expansion plans or new construction (description can be copied from the subproject proposal and then attached)

3. **Will the project affect the environmental parameters** listed below during the construction or operation phase? Indicate, as per the verification, during what stage the impact of the phases of the subproject will occur and

whether mitigation measures will be required. Explain what land needs will be needed and determine who owns the land, who uses the land, and / or how the land will be alienated.

Part 2 (to be completed by the Facilitator based on the results of the environmental pre-screening and review process)

Environmental risk category for the project (significant or moderate) _____

Requires ESIA and / or IEPR and IEPR checklist (yes or no) _____

What are the specific issues that need to be addressed in the ESIA / IEPR?

Person who carried out the preliminary environmental audit: _____ Date: _____

PRELIMINARY ENVIRONMENTAL INSPECTION CHECKLIST

1. Name of the subproject:
2. A brief description of the subproject, including: nature of the project, cost of the project, physical size, land area, location, ownership, presence of ongoing operations, expansion plans or new construction (description can be copied from the subproject proposal and then attached)
3. Will the project affect the environmental parameters listed below during construction or operation? Indicate, as per the verification, during what stage the impact of the phases of the subproject will occur and whether mitigation measures will be required.

Environment component	Construction phase	Operation phase	Proposed measures	mitigation
Terrestrial environment				
Soil erosion: is the project related to crop production? If so, which crops? Is the farmland located on slopes and / or plains? Does the project include plowing / planting of plants on the slopes?				

Salinization and waterlogging of soils: does the project use irrigation? If so, are there any signs of waterlogging and salinization? At what pace?			
Loss of habitat and biodiversity: Will the project involve the use or modification of natural habitats (grazing and plowing of steppe areas, cutting or removing trees or other natural vegetation, etc.).			
Soil contamination: Will the project use pesticides? If so, what types and how many? Will the project use mechanisms with a poorly functioning system of fuels and lubricants?			
Degradation of Lands, Habitats and Ecosystems: Is the area that will currently be used as a natural (not converted) habitat (forest, wetlands, natural grasslands, etc.)?			
Land degradation: Will the project include excavation work?			
Solid waste generation - what types of waste will be generated (different types of construction waste, waste from agricultural processing activities, manure) and their approximate amount.			
Generation of toxic waste - what types of toxic waste will be generated (obsolete and unusable pesticides and mineral fertilizers; chemicals used in agricultural processing; asbestos) and their approximate amount.			
Habitat and Biodiversity Loss: Will the project be located close to protected areas or other vulnerable areas that support important habitats for natural fauna and flora? Are there plans to expand the area for agricultural crops based on the transformation of natural habitats?			
Groundwater pollution - does the project involve the use of fuels and lubricants? if the project involves the production of livestock feed, does it have a manure platform?			
Construction			
Air quality: Will the project emit pollutants? What types of pollutants (SOx, NOx, particulate matter, dioxins, furans, etc.)			
Water environment			
Amount of water: will the project include water use? What volumes and from what source of water (centralized water supply system and / or reservoir)?			
Water quality / pollution: Will the project contribute to surface water pollution - what are the approximate volumes of wastewater			

discharges? Does the project provide for the discharge of wastewater into water bodies and / or into a centralized sewer network / septic tank?			
Loss of biodiversity: Will the project include the introduction of alien species (in the case of aquaculture subprojects)?			
Loss of biodiversity: Will the project be located near a protected area or wetland?			
Degradation of aquatic ecosystems - if the project provides for discharges into watercourses and solid waste reservoirs; the use of pesticides; cutting down forest shelter belts.			
Weeds, pests, diseases: will the project contribute to the spread of weeds, pests, animal and plant diseases?			
Sedimentation of water bodies - will the project contribute to the sedimentation of water bodies as a result of soil erosion?			
Socio-economic environment			
Social Impact - Does the project include the following: a) occupational safety issues; b) threats to health; c) compulsory acquisition of land or relocation of third parties using the land; d) loss of access to sources of income; e) loss of physical and / or economic assets. and (f) harassing residents living in the vicinity of the project area.			
Does the project require public consultation in accordance with national legislation to take into account environmental concerns and local contributions?			
Will the project ensure the protection of human health, labor safety and peace of mind of the residents living near the project area at the proper level? If not, is it possible, by applying the proposed measures, to reduce the degree of impact on the environment and society to acceptable levels?			

Appendix 4. Checklist of preliminary social checking (screening)

THE KHODJA MASHKHAD MAUSOLEUM Republic of Tajikistan, Khatlon region, Shaartuz district, Talbak Sadridin jamoat

	Activities	Yes	No	Notes (edit)
1.	Acquisition of land, buildings (residential and business)			If "Yes", and the answers to other questions are "No", please provide the relevant documents available to complete the final purchase and sale transaction
2.	Business acquisition or expansion to be carried out by demolition / relocation homeowners, tenants, formal and informal user assets			If the answer is "Yes", exclude from funding
3.	Acquisition of assets that will result in the loss of access by individuals or a specific community / groups, especially ethnic minorities, to: - Natural resources - Traditional places of residence - Traditional activities - Utilities facilities			If the answer is "Yes", exclude from funding
4.	Acquisition / or expansion of a business that can increase / increase the risk: 1. Violations of the labor code and laws, including the use of child labor 2. Persecution of ethnic minority groups in the project areas (related to their personality, dignity, and livelihoods by life support systems, cultural identity) 3. Trafficking and forced labor			If the answer is "Yes", exclude from funding
5.	Will the acquisition of land be carried out using the law on the state's right to expropriate property?			If the answer is "Yes", exclude from funding
6.	Will there be permanent or temporary loss of housing and residential land due to land acquisition?			If the answer is "Yes", exclude from funding
7.	Will there be permanent or temporary loss of agricultural and other productive assets due to land acquisition?			If the answer is "Yes", exclude from funding
8.	Will there be losses of crops, trees and fixed assets due to land acquisition?			If the answer is "Yes", exclude from funding
9.	Will there be permanent or temporary loss of business or business due to land acquisition?			If the answer is "Yes", exclude from funding
10.	Will there be permanent or temporary loss of income sources and livelihoods due to land acquisition?			If the answer is "Yes", exclude from funding
11.	If land or private property is acquired through the principle of an interested buyer and an			If the answer is "Yes", exclude from funding

	interested seller, will this lead to permanent or temporary relocation or relocation of landlords or tenants?			
12.	If land or private property is acquired through negotiations or through the principle of having an interested buyer and 124 interested sellers, will this lead to permanent or temporary relocation or displacement of informal land users (people without legal rights to land) or persons who seize land without permission?			If the answer is "Yes", exclude from funding
13.	Will the project include any permanent or temporary restrictions on land use, or access to protected parks or areas, thereby forcing people or any community to lose access to natural resources, traditional habitats, communal lands or properties?			If the answer is "Yes", exclude from funding
14.	Will the project use government land or any public land or property that will require permanent or temporary relocation of informal residents or users (residential or economic)?			If the answer is "Yes", exclude from funding

CHILUCHOR CHASHMA Republic of Tajikistan, Khatlon region, Nosiri Khusrav district, Istikloliyat jamoat

	Activities	Yes	No	Notes (edit)
2.	Acquisition of land, buildings (residential and business)			If "Yes", and the answers to other questions are "No", please provide the relevant documents available to complete the final purchase and sale transaction
3.	Business acquisition or expansion to be carried out by demolition / relocation homeowners, tenants, formal and informal user assets			If the answer is "Yes", exclude from funding
4.	Acquisition of assets that will result in the loss of access by individuals or a specific community / groups, especially ethnic minorities, to: - Natural resources - Traditional places of residence - Traditional activities - Utilities facilities			If the answer is "Yes", exclude from funding
5.	Acquisition / or expansion of a business that can increase / increase the risk: 1. Violations of the labor code and laws, including the use of child labor 2. Persecution of ethnic minority			If the answer is "Yes", exclude from funding

	groups in the project areas (related to their personality, dignity, and livelihoods by life support systems, cultural identity) 3. Trafficking and forced labor			
6.	Will the acquisition of land be carried out using the law on the state's right to expropriate property?			If the answer is "Yes", exclude from funding
7.	Will there be permanent or temporary loss of housing and residential land due to land acquisition?			If the answer is "Yes", exclude from funding
8.	Will there be permanent or temporary loss of agricultural and other productive assets due to land acquisition?			If the answer is "Yes", exclude from funding
9.	Will there be losses of crops, trees and fixed assets due to land acquisition?			If the answer is "Yes", exclude from funding
10.	Will there be permanent or temporary loss of business or business due to land acquisition?			If the answer is "Yes", exclude from funding
11.	Will there be permanent or temporary loss of income sources and livelihoods due to land acquisition?			If the answer is "Yes", exclude from funding
12.	If land or private property is acquired through the principle of an interested buyer and an interested seller, will this lead to permanent or temporary relocation or relocation of landlords or tenants?			If the answer is "Yes", exclude from funding
13.	If land or private property is acquired through negotiations or through the principle of having an interested buyer and 124 interested sellers, will this lead to permanent or temporary relocation or displacement of informal land users (people without legal rights to land) or persons who seize land without permission?			If the answer is "Yes", exclude from funding
14.	Will the project include any permanent or temporary restrictions on land use, or access to protected parks or areas, thereby forcing people or any community to lose access to natural resources, traditional habitats, communal lands or properties?			If the answer is "Yes", exclude from funding
15.	Will the project use government land or any public land or property that will require permanent or temporary relocation of informal residents or users (residential or economic)?			If the answer is "Yes", exclude from funding

	Activities	Yes	No	Notes (edit)
3.	Acquisition of land, buildings (residential and business)			If "Yes", and the answers to other questions are "No", please provide the relevant documents available to complete the final purchase and sale transaction
4.	Business acquisition or expansion to be carried out by demolition / relocation homeowners, tenants, formal and informal user assets			If the answer is "Yes", exclude from funding
5.	Acquisition of assets that will result in the loss of access by individuals or a specific community / groups, especially ethnic minorities, to: - Natural resources - Traditional places of residence - Traditional activities - Utilities facilities			If the answer is "Yes", exclude from funding
6.	Acquisition / or expansion of a business that can increase / increase the risk: 1. Violations of the labor code and laws, including the use of child labor 2. Persecution of ethnic minority groups in the project areas (related to their personality, dignity, and livelihoods by life support systems, cultural identity) 3. Trafficking and forced labor			If the answer is "Yes", exclude from funding
7.	Will the acquisition of land be carried out using the law on the state's right to expropriate property?			If the answer is "Yes", exclude from funding
8.	Will there be permanent or temporary loss of housing and residential land due to land acquisition?			If the answer is "Yes", exclude from funding
9.	Will there be permanent or temporary loss of agricultural and other productive assets due to land acquisition?			If the answer is "Yes", exclude from funding
10.	Will there be losses of crops, trees and fixed assets due to land acquisition?			If the answer is "Yes", exclude from funding
11.	Will there be permanent or temporary loss of business or business due to land acquisition?			If the answer is "Yes", exclude from funding
12.	Will there be permanent or temporary loss of income sources and livelihoods due to land acquisition?			If the answer is "Yes", exclude from funding
13.	If land or private property is acquired through the principle of an interested buyer and an interested seller, will this lead to permanent or temporary			If the answer is "Yes", exclude from funding

	relocation or relocation of landlords or tenants?			
14.	If land or private property is acquired through negotiations or through the principle of having an interested buyer and 124 interested sellers, will this lead to permanent or temporary relocation or displacement of informal land users (people without legal rights to land) or persons who seize land without permission?			If the answer is "Yes", exclude from funding
15.	Will the project include any permanent or temporary restrictions on land use, or access to protected parks or areas, thereby forcing people or any community to lose access to natural resources, traditional habitats, communal lands or properties?			If the answer is "Yes", exclude from funding
16.	Will the project use government land or any public land or property that will require permanent or temporary relocation of informal residents or users (residential or economic)?			If the answer is "Yes", exclude from funding

Appendix 5. Results of preliminary analysis of the state of the environment and social environment

<input type="checkbox"/>	Risk category: High. Significant impact, exclude from funding	Name and signature:
		Position:
<input type="checkbox"/>	Risk category: "Substantial". Limited or temporary exposure	Date:
		Approved by:
<input type="checkbox"/>	Risk category: "Moderate" Limited or temporary exposure	Name and signature:
		Position:
<input type="checkbox"/>	Risk category: "Low". No impact	Date:
		Name and signature:

Any sub-projects that include activities that are the same as those included in the list of unacceptable species and which may have high environmental risks will be disqualified. If the answer to one of the following questions is "YES", the project should be revised to reduce the level of risk.

Questions asked in the preliminary environmental and social analysis

A. Subproject location

- Is the sub-project area located less than 300 m from any of the following environmentally sensitive areas? _____
- Cultural heritage and historical site _____

- Legally Protected Area (main zone or buffer zone, all 5 types of protected areas as defined by national environmental legislation) _____
- Wetlands _____
- Mangrove forests _____
- Estuary _____
- Special area for the protection of biodiversity _____
- Residential areas, schools and hospitals

B. Potential significant environmental impacts for which no mitigation measures have been proposed by the sub-borrower

- Social and environmental conflicts or additional pressure on existing infrastructure and systems if a large number of workers are hired from other regions?
- Occupational health and safety risks and vulnerabilities due to physical, chemical, biological and radiological hazards during the construction and operation of the subproject?
- Public health and safety risks associated with the transport, storage, use and / or disposal of materials such as explosives, fuels and other chemicals during construction and operation?

C. Purchase and use of prohibited fertilizers, pesticides / herbicides, or hazardous materials.

Acquisition and use of new plant species that may be considered invasive alien species without following national regulations and adequate risk assessment or strict control measures to minimize their potential to enter the local environment.

Appendix 6. Recommended Action Plan for COVID-19 Protection

No	activity	Responsible	Deadlines	Reporting deadlines
1.	Applying Ways to Prevent the Spread of COVID-19 in the Workplace			
	1.1. Regular wiping of surfaces and objects with disinfectants: tables, chairs, telephones and keyboards.	Environmental Safeguards Specialist	Daily	Quarterly
	1.2. Installation and replenishment of disinfectant dispensers for wiping hands in visible places of the workplace.	Administrator	If necessary	Quarterly
	1.3. Placing posters advertising hand washing and promoting respiratory hygiene.	Administrator	During the pandemic	Quarterly
	1.4. Use other communication measures (providing health and safety advice from employees, meeting briefings, and online information to encourage hand washing).	Administrator	Regularly	Quarterly
	1.5. Providing access to places for hand washing (availability of sinks, taps with water and soap).	Administrator	Constantly	Quarterly
	1.6. Providing advice from health professionals, briefing at meetings and information on the intranet, etc.	Environmental Safeguards Specialist	Monthly	Quarterly
	1.7. Providing masks to employees in the workplace.	Administrator	Constantly	Quarterly
	1.8. Alerting employees, contractors and customers about the following measures in the spread of COVID-19:	Environmental Safeguards Specialist	When there is	Quarterly

	<p>- stay at home if you have a mild cough or low-grade fever (37.3 ° C or higher);</p> <p>- stay at home (or work from home) if you have to take simple medications such as paracetamol, ibuprofen, or aspirin, which can mask the symptoms of infection.</p>			
2.	Managing COVID-19 Risk When Organizing Meetings and Events			
	2.1. Develop and agree on a preparedness plan to prevent contamination at meetings or events.	Environmental Safeguards Specialist Administrator	Once	Quarterly
	2.2. Use of teleconferences or online events.	Administrator	If necessary	Quarterly
	2.3. Provide sufficient supplies, including face masks, wipes and disinfectants for all participants.	Administrator	During meetings	Quarterly
	2.4. List the contact information of the participants: mobile phone number, email address and home address.	Administrator	During meetings	Quarterly
	2.5. Developing and agreeing on a plan for responding to the occurrence of a case of illness in persons with symptoms of COVID-19 (dry cough, fever, malaise).	Environmental Safeguards Specialist	During meetings	Quarterly
	2.6. Take effective action when meeting attendees, employees, or a service provider test positive for COVID-19 during or immediately after the meeting.	Environmental Safeguards Specialist	During meetings	Quarterly
	2.7. Provide information or briefing, preferably both verbally and in writing, about COVID-19 and the measures the organizers are taking to make the event safe for participants.	Environmental Safeguards Specialist	Before meetings	Quarterly
	2.8. Provide hygiene products (handwashing or alcohol wipes) to all participants in the meeting or event.	Administrator	During meetings	Quarterly
	2.9. Provide contact information or a health hotline that members can call for advice or information.	Administrator	During meetings	Quarterly
	2.10. Provide measures to ensure that participants observe social distancing.	Administrator	During meetings	Quarterly
	2.11. Ensuring good ventilation of the room.	Administrator	During meetings	Quarterly
	2.12. Alerting all employees about cases of isolation of persons suspected of being infected with COVID-19	Administrator	During meetings	Quarterly
3.	Travel rules			
	3.1. Providing employees with up-to-date information on the areas in which COVID-19 is spreading using Internet	Environmental Safeguards Specialist	Before every trip	Quarterly

	resources. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/			
	3.2. Coaching by qualified professionals (e.g. health service, health care provider, or local public health partner) to travel to locations reporting COVID-19.	Environmental Safeguards Specialist	Before every trip	Quarterly
	3.3. Providing business travelers with alcohol-based hand rub.	Administrator	Before every trip	Quarterly
	3.4. Monitoring the condition of employees who have returned from an area where COVID-19 is spreading by observing symptoms for 14 days and measuring temperatures twice a day.	Environmental Safeguards Specialist	On arrival	Quarterly
4.	Preparing the workplace in case COVID-19 appears in the area			
	4.1. Development of an action plan in case of illness of employees with suspected COVID-19 at one of the workplaces.	Environmental Safeguards Specialist	When there is	Quarterly
	4.2. Take steps to identify and support people who may be at risk without introducing stigma or discrimination in your workplace.	Environmental Safeguards Specialist	Daily	Quarterly
	4.3. Develop a contingency plan and business continuity in the event of an outbreak in the communities where the organization operates.	Environmental Safeguards Specialist	Regularly	Quarterly
	4.4. Making plans with local health and social service providers for small and medium-sized enterprises with no health and welfare support	Environmental Safeguards Specialist	If necessary	Quarterly

Appendix 7. Protocol of public hearings

Hulbuk. Meetings and consultations with key stakeholders:

Detailed information on meetings and consultations held with government agencies, commercial organizations and entrepreneurs, as well as the public is presented below:

date	Basic notes
03-04.06.21	Introductory meeting. No meetings with decision-makers were planned. Basic data collection on environmental issues of the site is provided.
14-16.07.21	<p>Meetings were held: with the head of the executive power apparatus of the Hukumat district of Vose Kurbonzoda Safarbek, tel: 8331123284; mob: 918673310, director of the "Khulbuk" complex Khodjaev Abdullo, tel: 908001708.</p> <p>The leadership of the public organization "Peshsaf" acquainted the director of the complex with the goals and objectives set for the research group. Design studies are aimed at improving landscape architecture, dividing cultural green areas, providing the necessary lighting for the outer and inner parts of the site. The creation of spaces for private economic activities such as cafes, restaurants and shops is under consideration.</p> <p>The director of the complex voiced the problems of the need to preserve the green spaces that now exist on the territory of the Khulbuk fortress. Access to drinking water is a critical issue. The lack of water is felt even in technical and irrigation issues. Near the museum is the village "Mekhrobod" and the only well of the 70s of the last century is used by the southern part of the villagers. Process water flows by gravity.</p> <p>From the point of view of technical devices, the fortress in ancient times represented a unique complex of technologies for the sewerage system, drainage system, waste collection, and heating. Currently, there is an acute shortage of all of the above components. Waste collection is</p>

	<p>carried out without appropriate containers, while the land allocated for waste collection spoils the overall aesthetic appearance and litters the territory. In the northern part of the Khulbuk fortress, a groundwater pumping station was built at the expense of international assistance, but this station does not function due to lack of proper maintenance and financial resources. The management of the complex asks to restore the operation of the well and the transformer to provide the territory with irrigation water. We note that according to the data received from the specialists of the complex, part of the territory is approximately 1 meter higher than the level of the ancient part of the foundation of the fortress, which leads to the erosion of the foundation and erosion of the architectural structure. It is proposed to reduce the slope with the discharge of waste and irrigation water in the opposite direction from the fortress. Planting turf and moisture-consuming plants is especially dangerous. In the case of a choice in favor of planting grass and moisture-intensive plants, it is proposed to create small wastewater collectors along the edges of the complex with the necessary slope for drainage.</p> <p>To reduce water consumption at the facility, it is proposed to improve the territory with the help of point landings and the use of paving slabs.</p> <p>The arrangement of toilets is extremely important in the design of the improvement of the complex. The local staff at the complex sees a need for toilets based on local experience - cesspools. Our vision of this issue is different. Improvement is needed taking into account the installation of autonomous sewers, a system in which sewage drains are cleaned from beginning to end. The discharged water does not need to be further purified, it is sent directly into the reservoir or used for technical purposes. This is achieved thanks to aerobic treatment technology.</p> <p>Another problem is the division of the complex, consisting of the architectural part of the fortress and the museum, by the A235 highway. More than 1000 large and small cars pass through it every day. Noise, especially vibration, gradually negatively affects the state of the architectural building, and is also a limitation for the unification of the complex into a single infrastructure. Moving the road above the ground or underground, according to the head of the complex, will not solve the problem; the road needs to be moved in a different direction. In our opinion, the opinion of specialists in the construction of the roadway and the possible impact of the construction of an aboveground or underground structure on the vibration level is needed. In any case, moving the road in a different direction is not economically viable.</p> <p>From a social point of view, it is necessary to consider the issue of transferring a part of residential settlements from the proposed area of improvement, taking into account the protection of the rights and interests of citizens. The final structures to be demolished at the start of work must be determined by the parties.</p> <p>It is also necessary to consider the issue of involving the local population in the process of creating commercial projects (start-ups). Ideas from the local population: creation of a workshop for weavers, for the revival of glassworks, for working with clay and leather, as well as with metal.</p>
02-03.08.21	Conducting public consultations with stakeholders in Hulbuk urban settlement. Meetings were held with entrepreneurs and local residents. The goals and objectives of the project are explained in more detail, the motives of social involvement of the local population are clarified.
11-13.08.21	The collection of signatures of the protocol of public hearings on the construction / reconstruction of the facility was carried out, signatures of all interested parties were collected, including representatives of the Hukumat of the district, entrepreneurs and ordinary citizens. Protocol and signatures below.
23-24.08.21	The final collection of data on the flora and fauna of the area has been improved.

Protocols are available in the Russian version of ESIA

Khoja Mashhad. Meetings and consultations with key stakeholders:

Detailed information on meetings and consultations held with government agencies, commercial organizations and entrepreneurs, as well as the public is presented below:

date	Basic notes
01-02.06.21	Introductory meeting. No meetings with decision-makers were planned. Basic data collection on environmental issues of the site is provided.
21-23.07.21	<p>Identification of environmental and social problems in the Shaartuz area, Khoja Mashhad site. Meetings were held: Marat Tagayev, chairman of Sayed jamoat Nasredinov tel: 934068666, deputy chairman of Sayed jamoat Kholmatova Istatmo, tel: 933274545, Azimov Davlatmurod, assistant chairman of Sayed jamoat, tel: 937279738, Sharipova Barno, assistant guard 935041184 (son's number from Dushanbe) Azimov Muzafar, teacher from the Pedagogical University in Dushanbe.</p> <p>The meeting was held at the level of the Chairman of the Shaartuz region and the activity of the expert group was approved. A representative of the jamoat was assigned to work together. The leadership of the public organization "Peshsaf" acquainted the leadership of the jamoat and residents of nearby settlements of the complex with the goals and objectives set for the research group. Design studies are aimed at improving landscape architecture, dividing cultural green zones, providing the necessary lighting for the outer and inner parts of the site, moving the burials that are located on the territory of the complex. The creation of spaces where private economic activity will take place is being considered, such as cafes, restaurants, private hostel / guest house, shops.</p> <p>The complex is managed by local residents, who independently maintain the property, including the use of land for agricultural needs. Access to drinking water on the territory of the site is limited, pumping with a hand pump is carried out due to outdated technology. Water goes into the ground without proper drainage. This pump is the cause of soil erosion, it must be urgently dismantled, because it is located inside the complex.</p> <p>A feature of the complex is the presence of burials both inside the madrasah and outside its territory. The burials inside the Khoja Mashhad are an object of religious worship, but the condition of the graves leaves much to be desired. The work carried out on the reconstruction of Khoja Mashhad in the early 2010s led to more disastrous consequences - leakage of a part of the ceiling of the complex, a slow process of erosion of the soil and clay floor, the foundation of the structure, as well as raising salt from the ground. On the front part of the courtyard, there are several (up to 8 burials, possibly more, since some burials could have disappeared) burials that have relatives. An oral conversation with relatives showed that everyone agrees to the transfer of burials to the backyard closer to the site newly designated for the cemetery, except for one burial of a local scientist. It is required to carry out written approvals with relatives, as well as conduct a discussion with a dissenting family or leave the scientist's grave unchanged.</p> <p>There is no sewerage system in Khoja Mashhad. There are no toilets. Wastewater poses a threat to flooding the area. Saline plants are a particular problem, and they are constantly being controlled. There is no waste generation and collection system. The area from the front is used for agricultural purposes. There is a need to transfer fruit trees from the territory without damaging the root system. The rest (barren) trees are of little value and can be cut down or relocated in agreement with the local authorities. It is required to create a water supply system for the complex based on the installation of a submersible</p>

	<p>pump with mechanical water purification, the creation of a toilet based on a septic tank, cleaning of the collector-drainage system to lower the groundwater level.</p> <p>The arrangement of toilets is extremely important in the design of the improvement of the complex. The local staff at the complex see the need for toilets based on local experience - cesspools. Our vision of this issue is different. Improvement is needed taking into account the installation of autonomous sewers, a system in which sewage drains are cleaned from start to finish. The discharged water does not need to be further purified, it is sent directly to the collector or used for technical purposes. This is achieved thanks to aerobic treatment technology.</p> <p>Access to the complex is extremely limited for two reasons - the lack of signposts on the road, starting with the fork in the road in Shaartuz, ending with the quality of the road in the makhalla itself, where the historical complex is located. This restriction can significantly affect the access of visitors and tourists to the historical site. The research team sees the need to indicate in the design, the installation of signs, as well as the rehabilitation of a part of the road from the entrance to the jamoat to the historical site. It also requires the transfer of a small irrigation ditch, which flows through the territory of the historical complex to another place.</p> <p>The relocation of residential properties on the territory of the proposed restoration of the territory is not required, except for the demolition of the old toilet, which blocks access to the complex from the north side. The local population, which are basically migrants, are prohibited from entering the territory of the Russian Federation. The male part of the population asks companies that will participate in the improvement of the territory to attract them as a specialized labor force to improve the socio-economic situation of families located near the territory. There is also a need to train personnel on the basis of local school personnel as guides for tourists in the national, English and Russian languages. It is also necessary to consider the issue of involving the local population in the process of creating commercial projects (start-ups). Ideas from the local population: the creation of a workshop for weavers, for the revival of workshops for working with wool, for working with clay and leather, as well as with metal.</p>
04-06.08.21	Conducting public consultations with stakeholders in Sayed jamoat. Meetings were held with entrepreneurs and local residents. The goals and objectives of the project are explained in more detail, the motives of social involvement of the local population are clarified.
16-17.08.21	The collection of signatures of the protocol of public hearings on the construction / reconstruction of the facility was carried out, signatures of all interested parties were collected, including representatives of the Hukumat of the district, entrepreneurs and ordinary citizens. Protocol and signatures below.
25-27.08.21	The final collection of data on the flora and fauna of the area has been improved.

Protocols are available in the Russian version of ESIA

Chilu Chor Chashma. Meetings and consultations with key stakeholders:

Detailed information on meetings and consultations held with government agencies, commercial organizations and entrepreneurs, as well as the public is presented below:

date	Basic notes
07-09.06.21	Introductory meeting. No meetings with decision-makers were planned. Basic data collection on environmental issues of the site is provided.
14-16.07.21	<p>Identification of environmental and social problems in the Nosiri Khisrav area, Chilu Chor Chashma facility. Meetings were held: Nishonzoda Davron, chairman of the district Nosiri Khusrav, Umidbek Boboev, public organization "Rushdi Dier", as well as local staff of the historical and tourist complex 44 Chashma Tagaymurodov Shaimardon and Odil.</p> <p>A meeting was organized and held at the level of the head of the district Nosiri Khisrav Nishonzoda Davron, where the goals and objectives of the modern and aesthetic development of the 44 Chashma complex were discussed with the involvement of all parties, respect for the rights and legitimate interests of the owners of the complex without prejudice to the ecological well-being of the territory.</p> <p>The Chilu Chor Chashma complex belongs to the cotton processing plant of the Shaartuz region, is a place of recreational recreation for the population of the Kabodien, Nosiri Khusrav and Shaartuz districts. The place has a spring of clean water. Water samples were taken to determine the purity of drinking water. The object is located on the right bank of Kafirnigan, 12 kilometers west of Shaartuz, on the territory of the Istiklol jamoat, in Nosiri Khusrav district of Khatlon region. One of the most wonderful freshwater springs. From the foot of a small hill, five large springs gush out, which split into 39 smaller ones. The water of the springs forms a channel 12-13 meters wide, in which "sacred" fish (various species of the Marinka genus), as well as trout, live. The source is known to the residents of Tajikistan and neighboring Uzbekistan, and they often come here in the summer. Those who visit the spring pray, bathe, bathe (the canal is a bathing place for men and a separate closed area for women) and offer sacrifices. Water from 17 springs is considered healing. Plane trees and poplars grow on the territory of the spring, there is a large orchard. Above the source there is a small hill with a small mausoleum, an object of veneration for Muslims. According to local legends, a saint by the name of Kambar Bobo is buried in it, who was Ali's groom (599-661) and looked after his mule Duldul. Nearby are the graves of four more unknown saints. In Soviet times, an inter-collective farm rest house for cotton growers and milkmaids was organized on the site of the mazar.</p> <p>The peculiarity of the complex is the presence of a fresh water source, which is used by the inhabitants for sacred water. The waters of the source are constantly littered due to the rather huge influx of tourists and vacationers. During the season, their number can reach up to 0.3 million people. Littering of water sources occurs downstream of the spring. According to local ecologists, this leads to a load on the collector and drainage system, pollution of the source waters, which are used by local residents as drinking water.</p> <p>There is no sewerage system on the territory of the 44 Chashma complex. There are no toilets. The arrangement of toilets is extremely important in the design of the improvement of the complex. The local staff at the complex see the need for toilets based on local experience - cesspools. Our vision of this issue is different. Improvement is needed taking into account the installation of autonomous sewers, a system in which sewage drains are cleaned from start to finish. The discharged water does not need to be further purified, sent directly to the collector system of the area for irrigation, or used for technical purposes. This is achieved thanks to aerobic treatment technology.</p>

	<p>The biggest problem of the complex is access roads and an uncomfortable parking lot. 100-150 meters of roads require complete rehabilitation. Entry must be controlled. Improvement of the car park for passenger and route transport should be provided. It is also possible to set up special points for the sale of commercial goods, as well as souvenirs.</p> <p>On the territory of the complex itself, we see the need to limit bathing in the spring from the beginning to the end of the territory of 44 Chashma. This is due to a number of factors, such as the preservation of the Red Book fish species, stopping littering of the spring waters downstream (requires the installation of catching nets for waste), and limiting water intake (alternatively, selling water in special bottled containers with purification on a commercial basis). As an alternative to using the waters of the spring - the construction of a water park for up to 5,000 visitors, which will create up to 200-500 jobs during the season, taking into account the development of entrepreneurship and folk art. It is also necessary to provide for the construction of a prayer house.</p> <p>Rehabilitation of the road that leads to the top of the burials is required. It is not possible to foresee commercial points at the top due to tradition.</p> <p>Involving the local population in business development is not a difficult process, since most businessmen live off this complex. It is necessary to pay attention to the possibility of folk handicrafts entering the goods market on the territory of this complex. There are people who are interested in receiving grants for the development of start-ups based on weaving, felt, pottery, as well as the development of iron processing.</p>
09-10.08.21	<p>Conducting public consultations with stakeholders, including entrepreneurs from Nosiri Khusrav and Shaartuz. Meetings were held with entrepreneurs and local residents. The goals and objectives of the project are explained in more detail, the motives of social involvement of the local population are clarified.</p>
18-20.08.21	<p>The collection of signatures of the protocol of public hearings on the construction / reconstruction of the facility was carried out, signatures of all interested parties were collected, including representatives of the Hukumat of the district, entrepreneurs and ordinary citizens. Protocol and signatures below.</p>

Protocols are available in the Russian version of ESIA

Appendix 8. Data from sociological research.

Sociological data for the study areas

Tajikistan is a progressive country and the implementation of innovative solutions in the field of the widespread development of the state is necessary in order to follow the trends of the modern world. The implementation of the project on the reconstruction of historical objects in the following locations Nosiri Khusrav jamoat (Chilu Chor Chashma), Guliston jamoat (Khulbuk), Talbak Sadridin jamoat (Khoja Mashhad) aims to create a new direction in the development of domestic tourism and attracting foreign visitors. In this sociological study, the public organization "Peshsaf" sets itself the goal of investigating the attitude of all interested parties to the reconstruction of a historical object located on the territory of their district.

Three categories of stakeholders were selected to conduct a complete and detailed report: local residents, entrepreneurs and government officials (representatives of hukumats and jamoats).

To conduct a sociological study, our experts have created questionnaires with comprehensive questions regarding the restoration of cultural objects.

Purpose and scope of study

The main objectives of the research are:

- Analysis of the opinions of the local population / entrepreneurs / government officials on the reconstruction of a historical site;
- Analysis of proposals from the population / entrepreneurs / government officials to improve the activities of the historical site;
- Analysis of the opinion of the population / entrepreneurs / government officials on the development of tourism in the area where the historical site is located;
- Research of social problems present in the territory of the region where the historical object is located;
- Studying the opinion of the population about participation in the district development program and the use of grants for business development in the territory of the district where the historical object is located;
- Analysis of public opinion about the type of business that will be implemented after receiving the grant.

Methodology

To obtain qualitative characteristics of the issue under study, the sociological study used the method of polling the population, government officials and entrepreneurs at the place of residence of the respondents, the location of the state body and the location of a business, using a survey methodology.

A survey is a qualitative method that makes it possible, with the correct construction of the sample, to talk about the entire general population of the issue under study with a low percentage of statistical error.

The advantages of this survey method are:

- minimal influence of the interviewer on the respondent;
- high reliability of the data obtained;
- unified structure of questions;
- the possibility of using mathematical and statistical methods in data analysis.

The disadvantages of this survey method include:

- loss of the opportunity to receive completely new information that the respondent could give in a free interview;
- increased likelihood of receiving distorted information due to the respondent's uncertainty about the anonymity of the survey;
- limited number of possible answers to the questionnaire.

The data obtained during the field stage of the study reflects the research problem in the form in which it is perceived by the population / entrepreneurs / government officials of the surveyed areas. The chosen method of data collection corresponds to the solution of the set goals and objectives of sociological research on the territory of the regions where historical objects are located.

Khulbuk, Vose district, Khatlon region, Tajikistan

As a result of the collected data (relevant for 2019), the following data was revealed; the total number of the Vossé district is 215 thousand people; households 24,215; secondary educational institutions 72; the total number of enterprises in the commercial and industrial sector is 35; employment of the population is 31.8 thousand; the number of labor migrants 4,757 thousand; officially registered unemployed 665.

Population

In total, during the sociological survey, n = 38 residents living near the Khulbuk fortress were interviewed.



Figure 26. Sociological survey of

the population in the urban settlement Khulbuk

One of the first questions that interested interviewers was the question of the age of the survey participants, thus, the sociological study of the issue was reduced to dividing the population into age groups. The study of the wishes of all groups of the population and the correct approach to the survey made it possible to identify urgent problems that relate to each of the surveyed age groups separately.

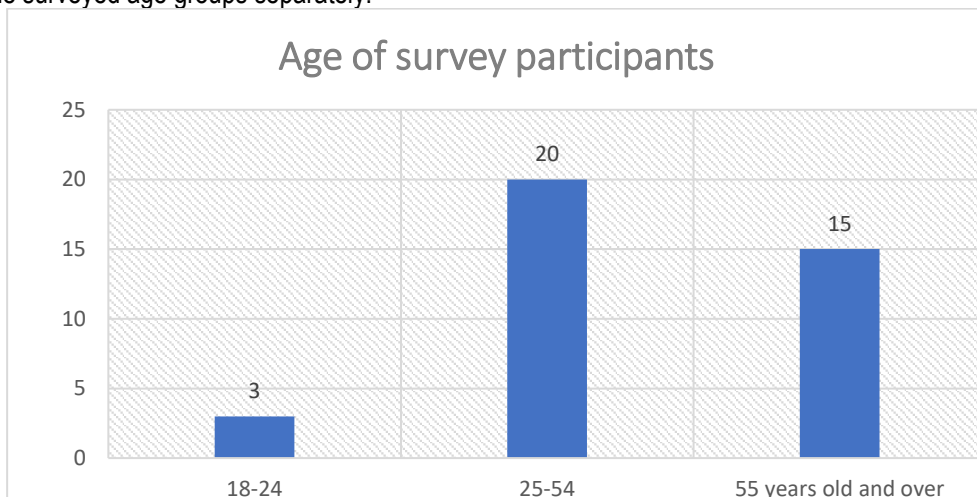


Diagram 1. Age of survey participants

The survey was conducted near the location of the historic site, with the aim of interviewing the population most at risk from the restoration of the historic site. On the territory of the Khulbuk fortress there are residential buildings, the residents of which may be subject to resettlement during the restoration of the historical object. Their survey was conducted in the most "mild" form so as not to expose them to excessive psychological pressure.

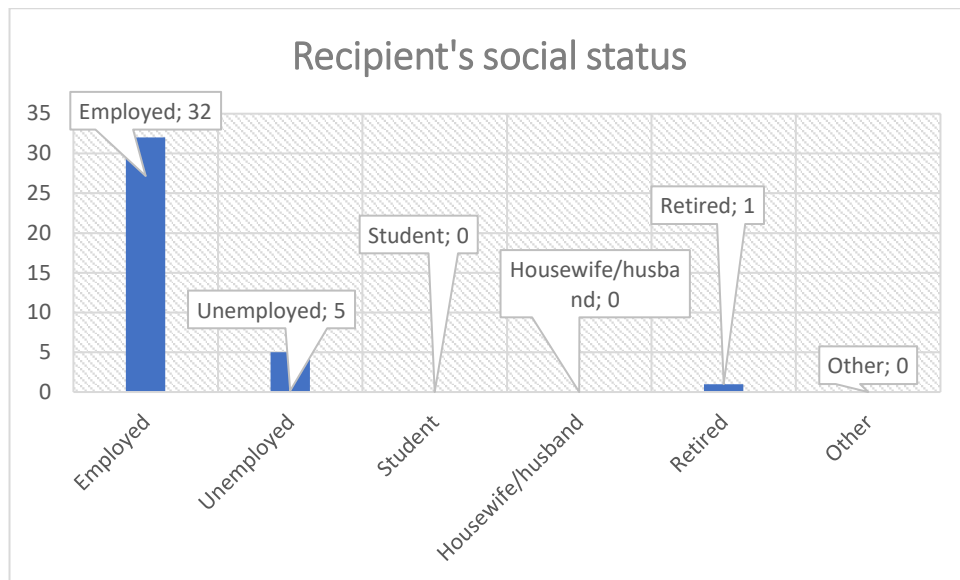


Diagram 2. Social status

The next question of interest for the interviewer was the definition of the social status of the interviewed recipients, as most of 32 people out of 38 respondents were employed, 5 unemployed and 1 pensioner. Regional unemployment is one of the main problems of life in the regions of Tajikistan. The respondents hope to create jobs on time and after the restoration of historical sites.

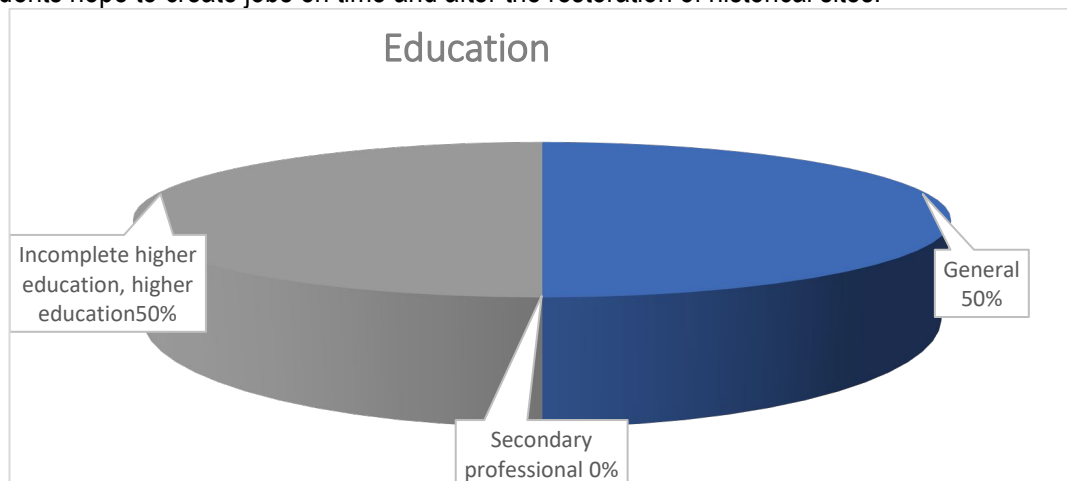


Diagram 3. Education

As the social survey shows, the number of people with higher and secondary education is the same.

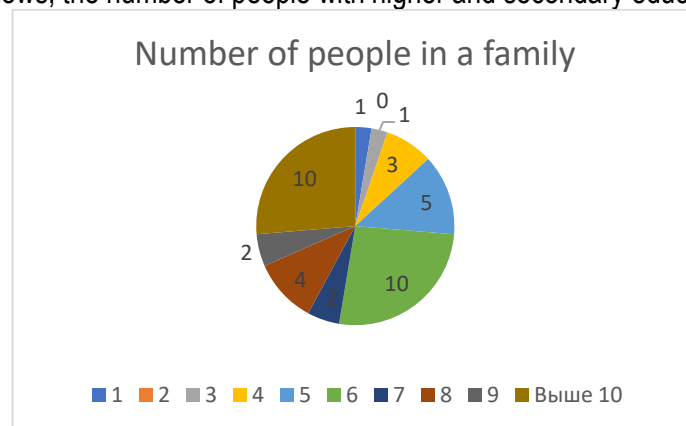


Diagram 4. Number of people in a family

The number of people in a family reflects the level of well-being of the family, so in the regions of Tajikistan there is a tendency to an increase in the number of the population due to the demographic growth of the population in the regions.

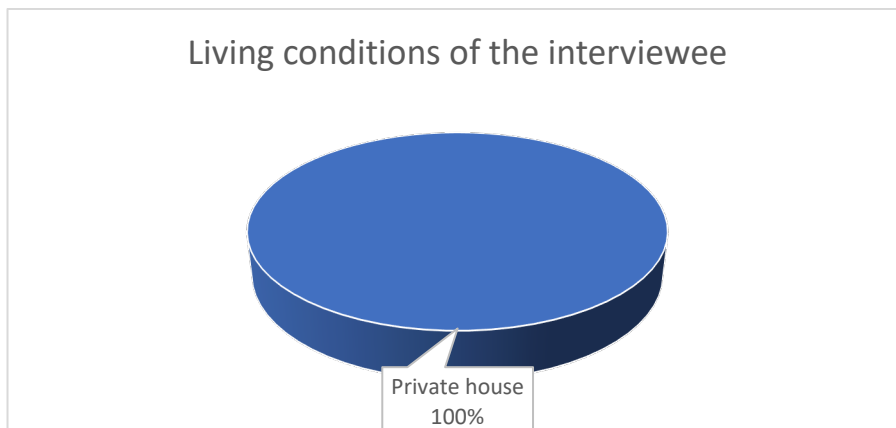


Diagram 5. Housing conditions

In the regions, it is observed that the majority of residents live in their own houses without renting housing.

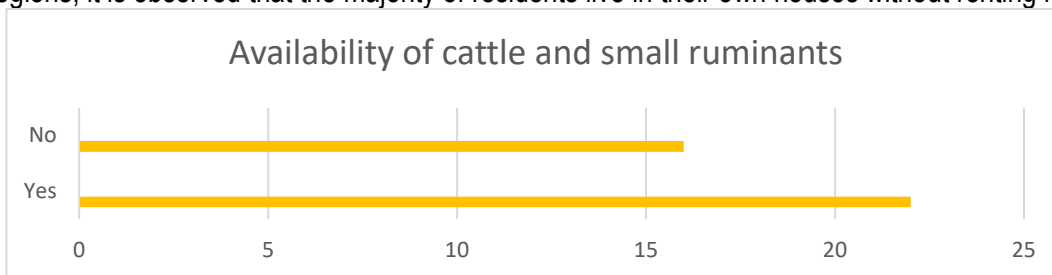


Diagram 6. Availability of cattle and small ruminants

The presence of cattle and small ruminants indicates the well-being of a population group. The presence of large and small livestock, such as cows and rams, allows you to receive passive income from the sale of derivatives (milk, wool) of these animals.



Diagram 7. Visiting a historical site

In the course of a sociological study, it became necessary to identify the attendance of a historical object among the local population, so among the respondents 16 residents visit a historical object every day, 5 residents visit it once a month and 17 residents visit it once a year. Local residents see the main problem of the lack of popularity of the object in the lack of advertising and interest among the younger generation. Some residents argue about the need to include a visit to this site in the school curriculum of local schools.

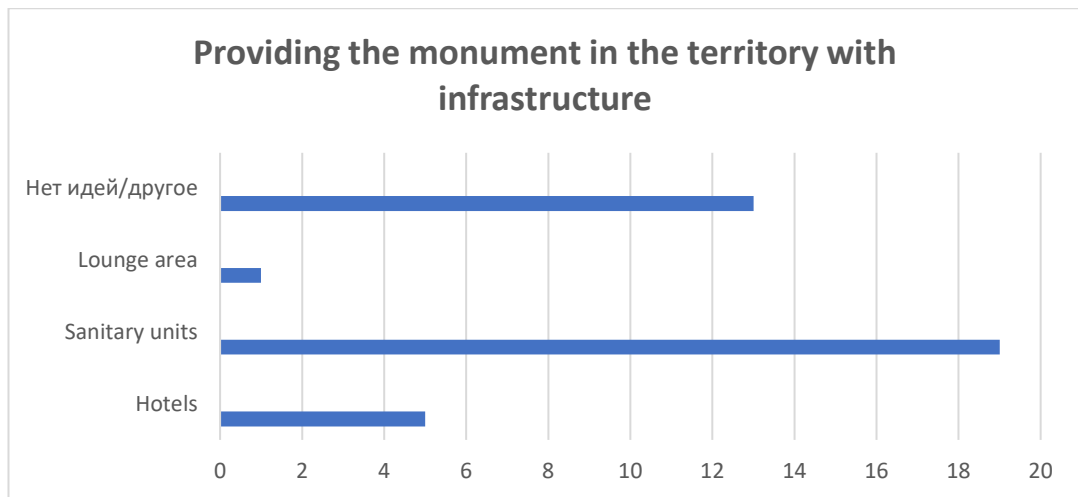


Diagram 8. Ideas for the improvement of the complex

Most of the surveyed residents point to the lack of internal infrastructure at the historical site and recommend creating conditions for a pleasant stay of tourists on the site. Residents are encouraged to create a bathroom, open a souvenir shop, a dining room and organize an entertainment program.

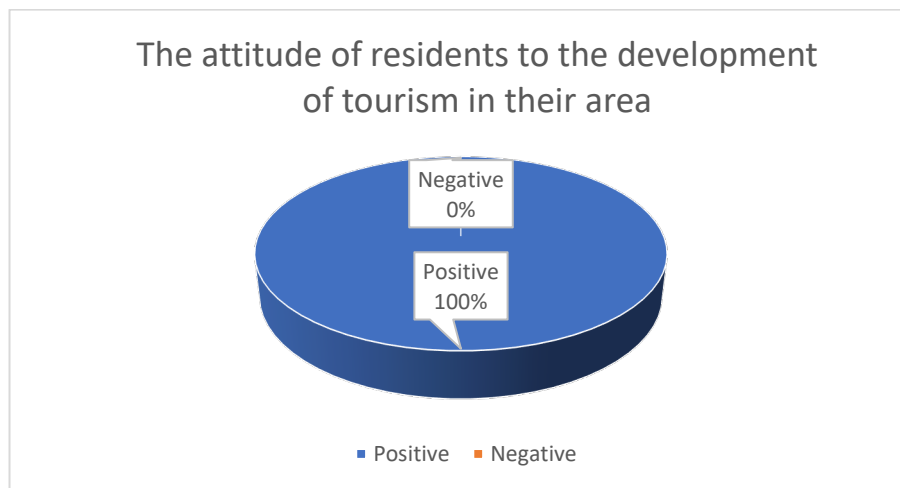


Diagram 9. Attitude towards tourism

The main idea for the development of the popularity of the historical object is presented by residents, in the form of a full-scale advertising campaign, not only in the Republic of Tajikistan, but also abroad.

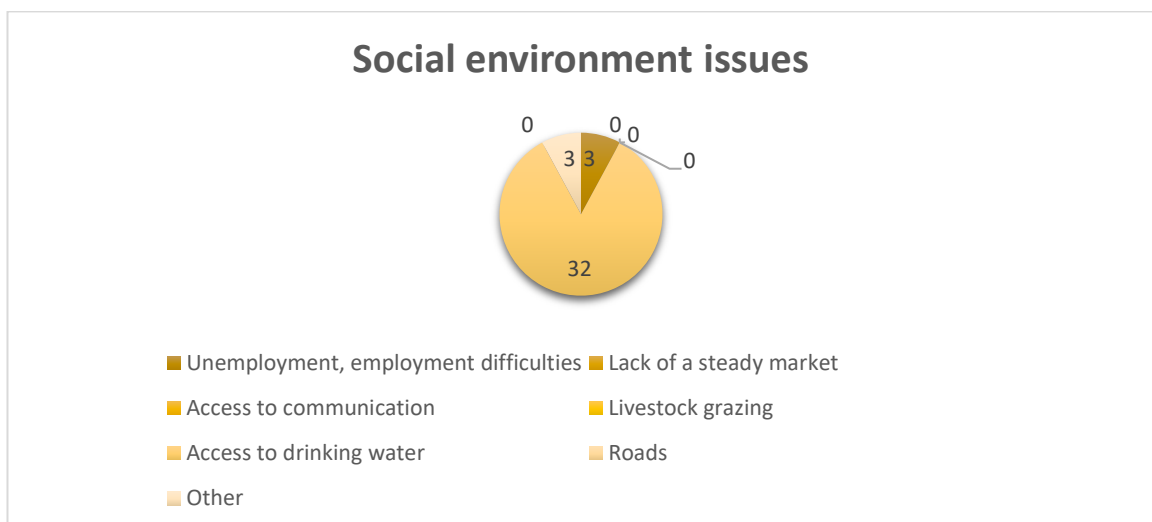


Diagram 10. Problems of the social environment

The main social problem of the residents living near the Khulbuk fortress is the lack of access to drinking and irrigation water.

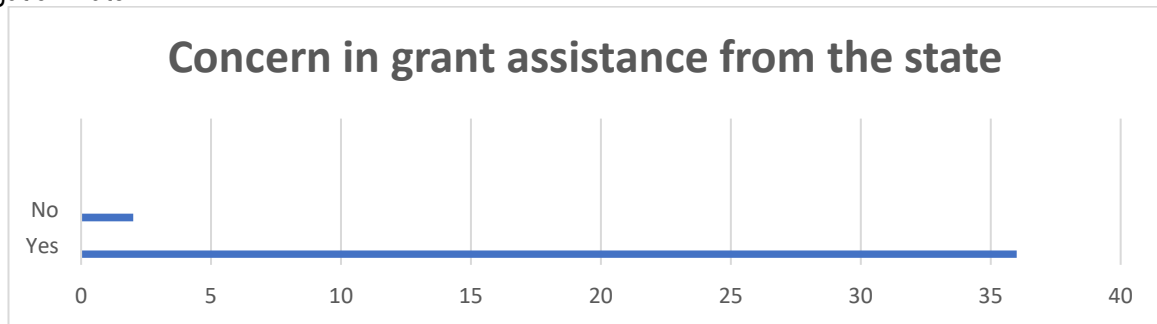


Figure 11. Interest in external assistance

Based on the survey data, 95% of the population are interested in participating in grant activities organized by the Ministry of Finance of the Republic of Tajikistan.

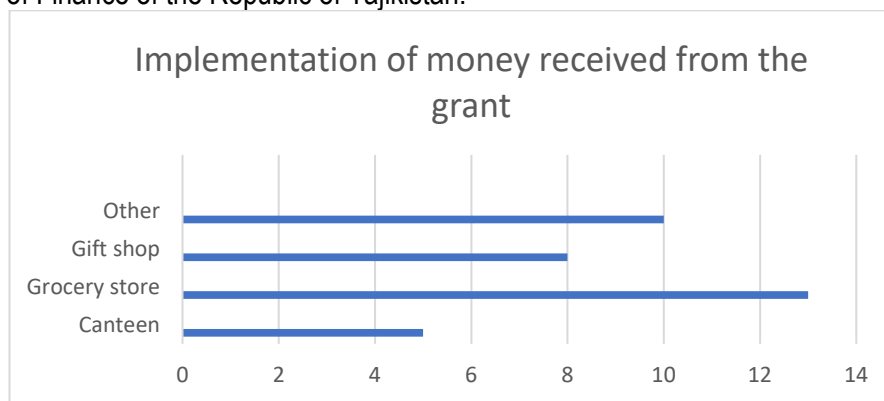


Diagram 12. Ideas for start-ups

Receiving grant assistance will allow citizens to realize their ambitions in the field of business development and will help the development of a historical site located on their territory.

Result

The Khulbuk fortress is a historical heritage of the Republic of Tajikistan and is of great importance for the entire population of Tajikistan. Representatives of the Khulbuk Fortress have applied several times for the inclusion of this historical site in the UNESCO Heritage Site. Presumably, the restoration of the Khulbuk fortress will help it become a more obvious choice for including the fortress in the historical chronicles of UNESCO.

The residents of the jamoat, who are located near the Khulbuk fortress, are positive about the reconstruction of the object, in their opinion, the location of the fortress will attract not only local tourists, but will also become an important site for foreigners to visit.

Now the object needs a radical reconstruction, according to the local population, the creation of internal infrastructure is the main factor in the absence of mass visits to this historical object.

The location of the fortress next to the central road causes concern among local residents and the director of the museum dedicated to this historical site. Vibration from passing cars gradually destroys the historical site and in subsequent years can lead to catastrophic consequences.

The local population is ready to learn new crafts and create a national product that will be associated with the Republic of Tajikistan. Also, the local population is ready to participate in startups to open their own business.

Entrepreneurship

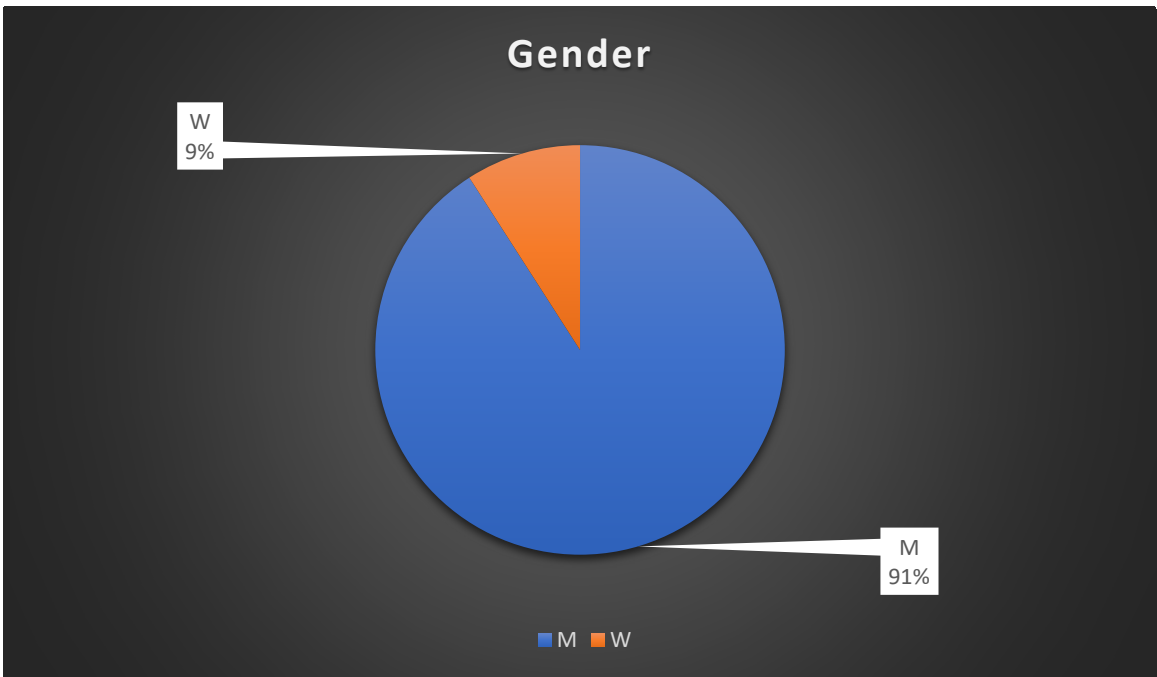


Diagram 13. Gender of survey participants

During the interview, 11 entrepreneurs were interviewed who operate near the Khulbuk fortress. Most of the entrepreneurs openly went to discuss the questions of the questionnaire, while some refused for lack of time.

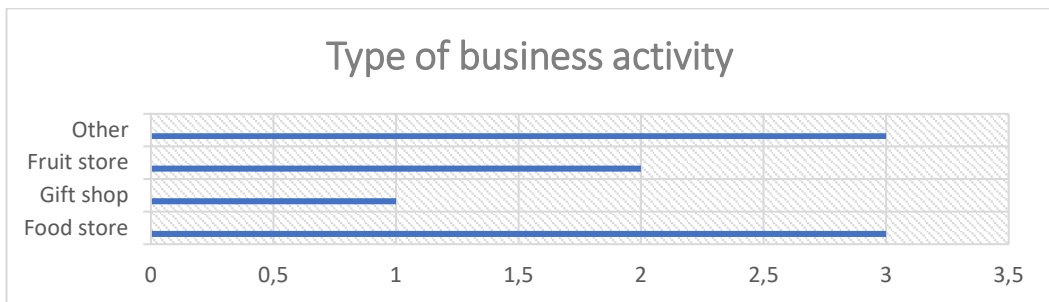


Diagram 14. Type of entrepreneurial activity

The location chosen for the interview is often visited as it is a "spontaneous" train station surrounded by shops and a small market.

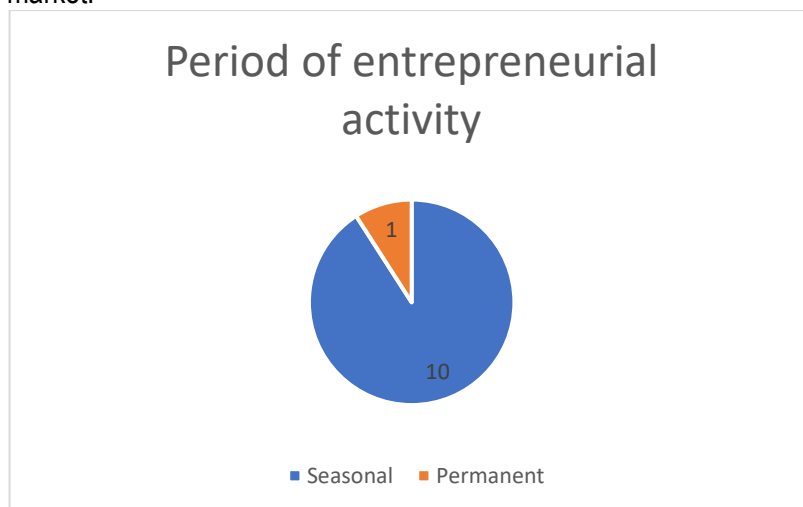


Diagram 15. Period of entrepreneurial activity

Entrepreneurial activity at the investigated object is permanent. Since it does not depend on weather conditions, and they carry out their activities depending on the needs of the population and tourists. The only respondent who is engaged in seasonal work was a fruit seller.

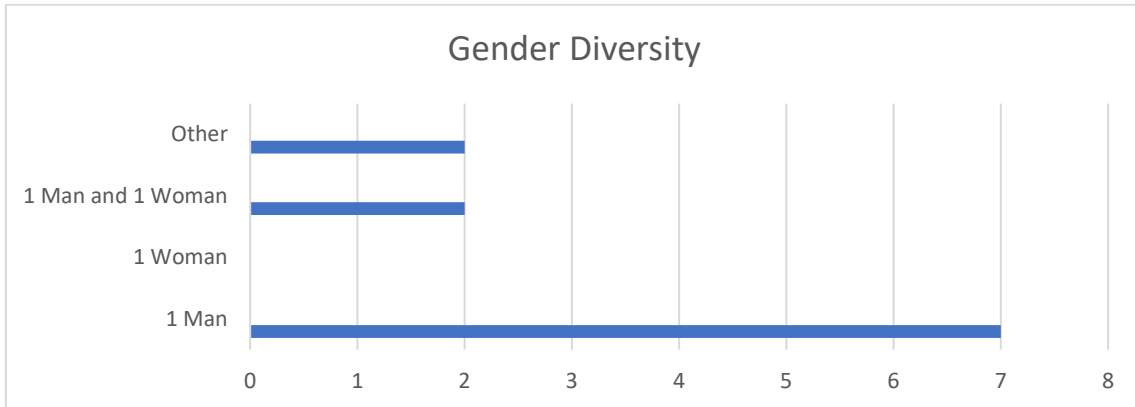


Figure 16. Gender division

Gender diversity is highly variable; women, like men, have equal rights to run and profit from a business.

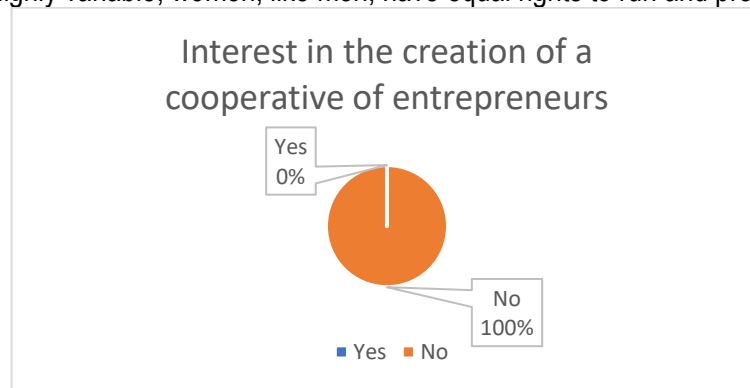


Diagram 17. Unification into cooperation

Many entrepreneurs do not understand the meaning of the concept of "cooperative", because of this, they deliberately have a wrong opinion. Many of them think that with the creation of a cooperative they will lose their own independence and will have to reckon with the opinion of the majority.

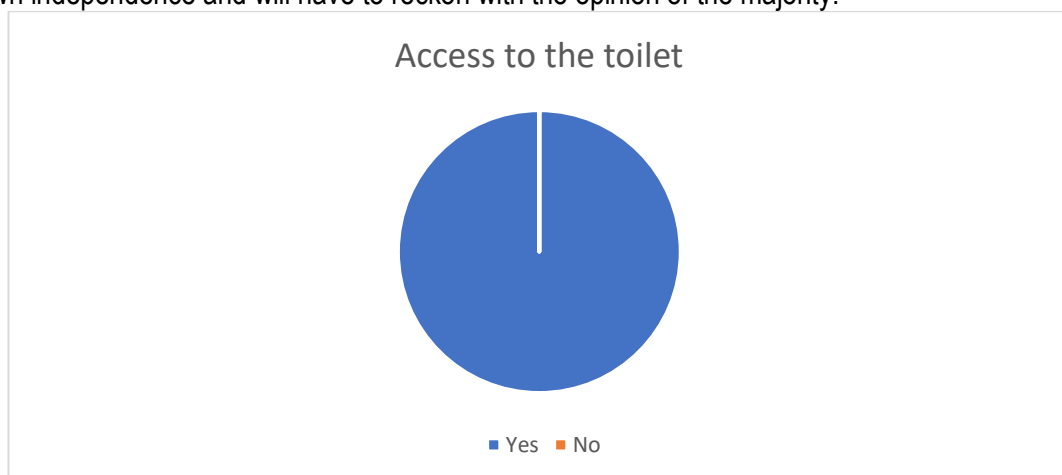


Figure 18. Access to the toilet

Entrepreneurs working near the Khulbuk fortress indicate that access to the bathroom is present, but its sanitary condition is poor.

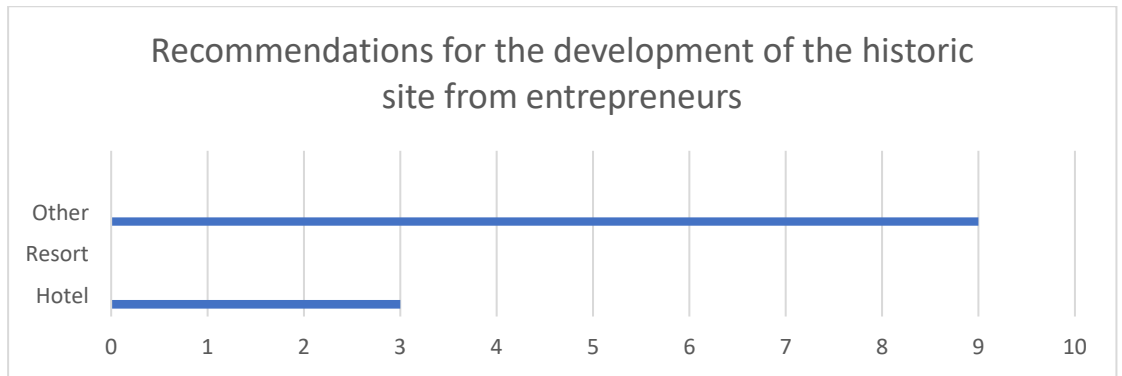


Diagram 19. Recommendations for the development of entrepreneurship

Basically, entrepreneurs offered to improve the internal infrastructure of the historical site. This was mainly expressed in the construction of a bathroom, the improvement of paths, the construction of a hotel.

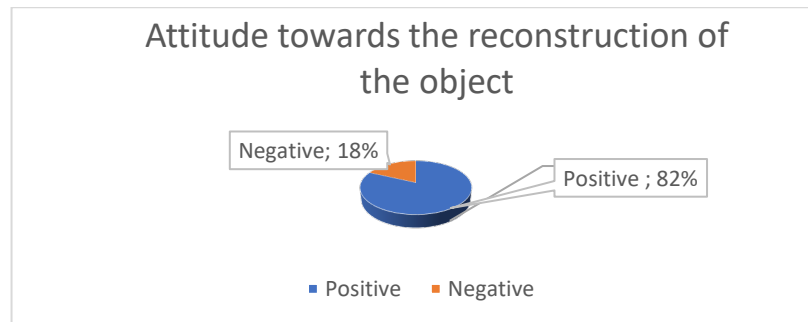


Diagram 20. Attitude to the reconstruction of the object

Entrepreneurs have a positive attitude towards the reconstruction of the facility. The entrepreneurs hope that after the reconstruction of the historical object, the flow of tourists who will arrive at the historical object will increase their profit. According to entrepreneurs, the development of a historical object is impossible without the development of its internal infrastructure, for example: the construction of a bathroom, places for recreation, paths, etc.



Figure 27. Survey of entrepreneurs in Vose district

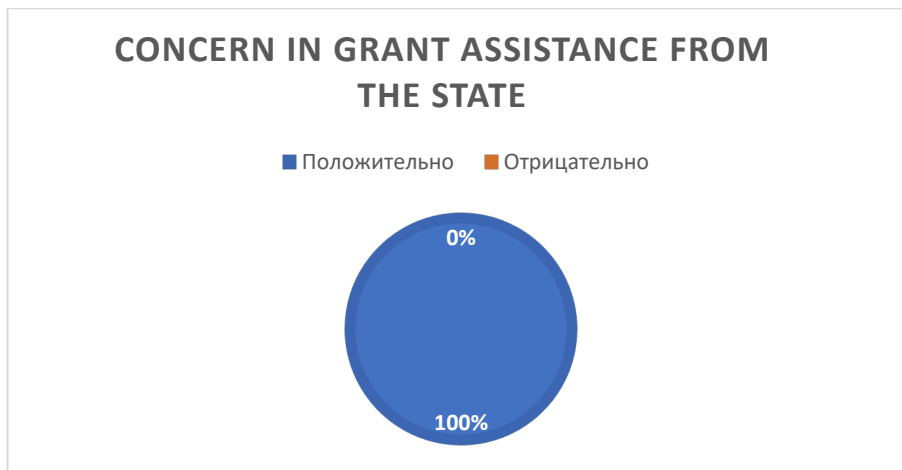


Diagram 21. Interest in grant support

From this diagram, we can see that 100% of entrepreneurs in this area are interested in participating in grant assistance from the Ministry of Finance.

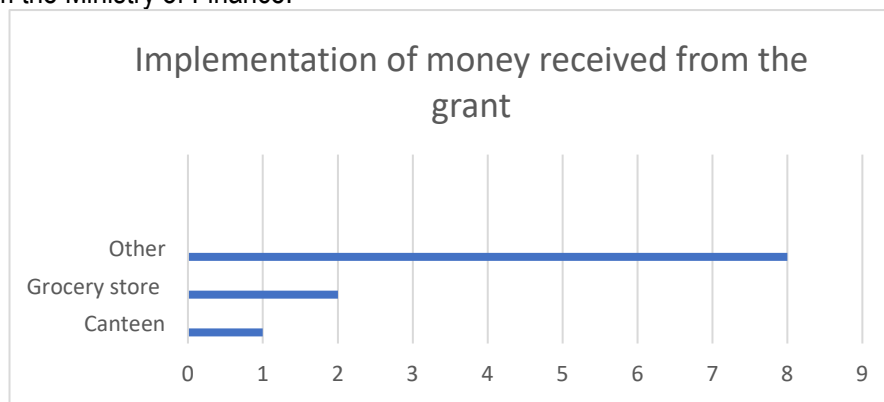


Figure 22. Proposed activities

Result

In the Guliston jamoat (Khulbuk), eleven entrepreneurs were interviewed, in their opinion, the creation of high-quality infrastructure and advertising of the fortress will improve the circulation of traditional goods and create new jobs for the local population.

Government representatives

During the visit to the historical site of the Khulbuk fortress, a social survey was carried out between representatives of state authorities, namely, two deputy chairmen of the Hukumat Vose relating to the territory in which the historical site is located, a specialist in agriculture from the Guliston jamoat and the director of the museum of the Khulbuk fortress.



Figure 28. Meeting with the Chairman of the Hukumat of Vose District

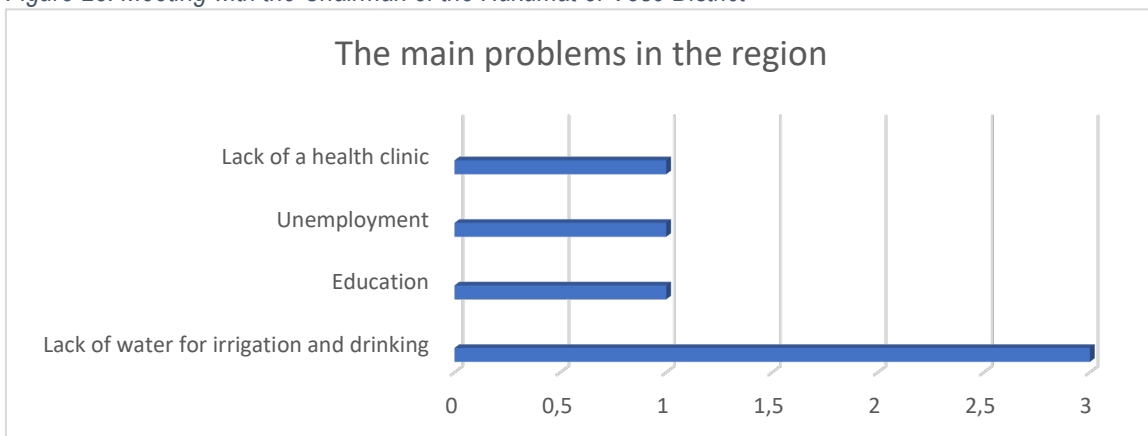


Figure 23. Main problems in the region

According to representatives of state authorities, the main problem in the region at the moment is the lack of water for irrigation and drinking, and due to the lack of work in the settlements, there is a question of a large number of unemployed. Government officials hope that during the period of reconstruction and operation of the historic site, there will be an opportunity to attract local residents and create new jobs.

At the moment, more than 240 thousand people live on the territory of the Vose district, 27 617 people live in the Guliston jamoat near the historical object.

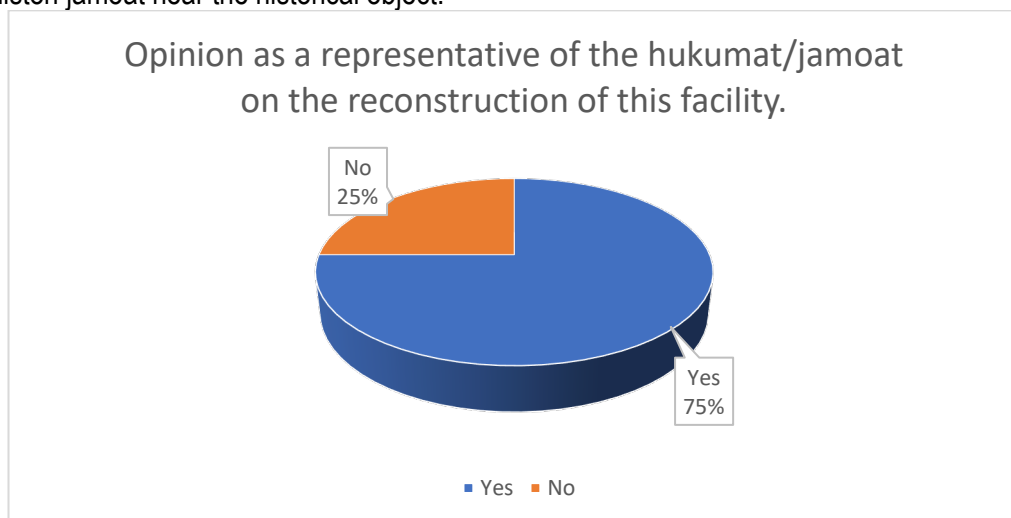


Diagram 24. Opinion of state authorities on the reconstruction of the object

All representatives of state power expressed their full agreement on the reconstruction of the historical object, the director of the museum expressed a negative opinion, considering the reconstruction to be dangerous for the state of the historical object and preserving its original state.

Hukumat and jamoat, to the best of their ability, are ready to provide support in the preparation of documentation and assistance in the reconstruction of the facility. Also, in the event of a possible resettlement of residents, the hukumat is ready to provide a land plot, but the hukumat's budget does not include funds for the restoration of the house.

Result

Representatives of the state authorities in the Khukumat of the Vose district and the Guliston jamoat speak positively about the reconstruction of the historical object, the benefits for the districts and the city can be quite tangible. The widespread support of these bodies will make it possible to carry out the reconstruction of facilities without any particular complications. Government officials are hoping for possible job creation and infrastructure upgrades. Each region has a number of problems that need to be addressed, as unemployment is the main negative factor that exists everywhere in all regions. Attraction of tourists and government assistance will give an impetus to the local population for the development of entrepreneurship. In the event of a possible resettlement of the population during the expansion of the territory of the Khulbuk fortress, the Vose hukumat will allocate a land plot for resettlement, but the hukumat's budget does not provide for the construction of new houses for the resettlers.

Key recommendations

The main recommendations identified in the course of conducting a sociological study on the reconstruction of the Khulbuk fortress are as follows:

- Development of a methodology to involve the local population in the reconstruction of the facility as builders under the supervision of a specialist;
- Adaptation of the territory next to the historical site for private commercial and creative activities, including crafts and handicrafts; arrangement of a specialized workplace (office) with auxiliary rooms and / or zones.
- Creation of a full-scale advertising campaign (foreign television, radio, newspapers, bloggers) to attract tourists;
- Creation of conditions for attracting local residents to participate in startups (information, consultation, assistance in collecting documents);
- Training local residents to work as guides on a historical site located in their area;
- Creation of a recognizable national merchandise with the symbols of a historical object;
- Training for men, women and girls in new crafts (embroidery, carpentry, blacksmithing) and holding fairs on the territory of the historical site;
- Conducting introductory lectures with the participation of experts for local residents about the significance of the historical site, and possible prospects for the population after its restoration;
- Conducting free introductory excursions for the young population;
- It is necessary to install forks on the road with information about the location of the historical object;
- Install garbage cans at the facility with separation of waste types;
- Construction of a bathroom in an accessible place for tourists who are visited by tourists;
- Creation of a library named after the Khulbuk fortress;
- Ensure the safety of local residents in view of the ongoing reconstruction of the facility;
- There is a need to install a banner near the Khulbuk fortress, which would describe the historical significance of the site;
- Place a security post next to the facility to protect against possible looters;
- Install a speed limiter along the path of the location of the historical object;
- Reconstruction measures to ensure the availability of jobs for the local population;

- Computerization of a historical object (computer, telephone, fax modem, etc.), security systems;
- The upbringing of the younger generation (lectures, periodic performances) - ensuring the accessibility of the historical site for visiting.



*Figure 29. Sociological survey in the Vose region
Khoja Mashhad, Shaartuz district, Republic of Tajikistan*

As a result of the collected data (relevant for 2019), the following data were revealed; the total population of the Shahrituz district is 123.8 thousand people; households 21830; secondary educational institutions 54; the total number of enterprises in the commercial and industrial sector is 18; employment of the population 20,025 thousand; the number of labor migrants is 3920 thousand; officially registered unemployed 949.

Population

In total, in the course of the sociological survey, $n = 36$ residents living near Khoja Mashhad were interviewed. One of the first questions that interested interviewers was the question of the age of the survey participants, thus, the sociological study of the issue was reduced to dividing the population into age groups. This indicator is the most relevant as it reflects the needs of the population. So the population at the “age” basically accepted the restoration with “coolness” without seeing any prospects, then the young population saw this as an opportunity to find a job to provide for their family.

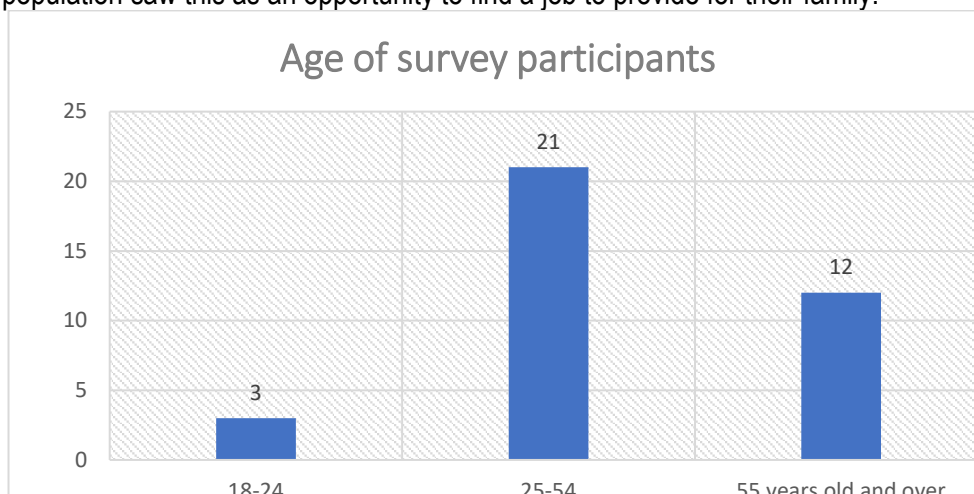


Diagram 25. Age of survey participants

The survey was conducted near the location of the historic site, with the aim of interviewing the population most at risk from the restoration of the historic site.

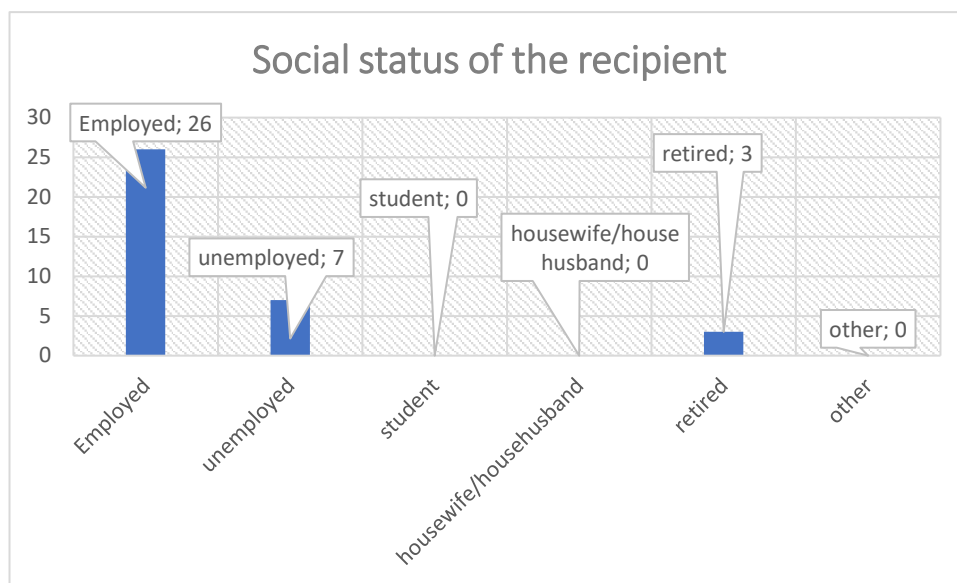


Diagram 26. Social status

The next question of interest for the interviewer was the definition of the social status of the interviewed recipients, as most of 26 out of 36 respondents were employed, 7 were unemployed and the third were retired. Regional unemployment is one of the main problems of life in the regions of Tajikistan. The respondents hope to create jobs on time and after the restoration of historical sites.

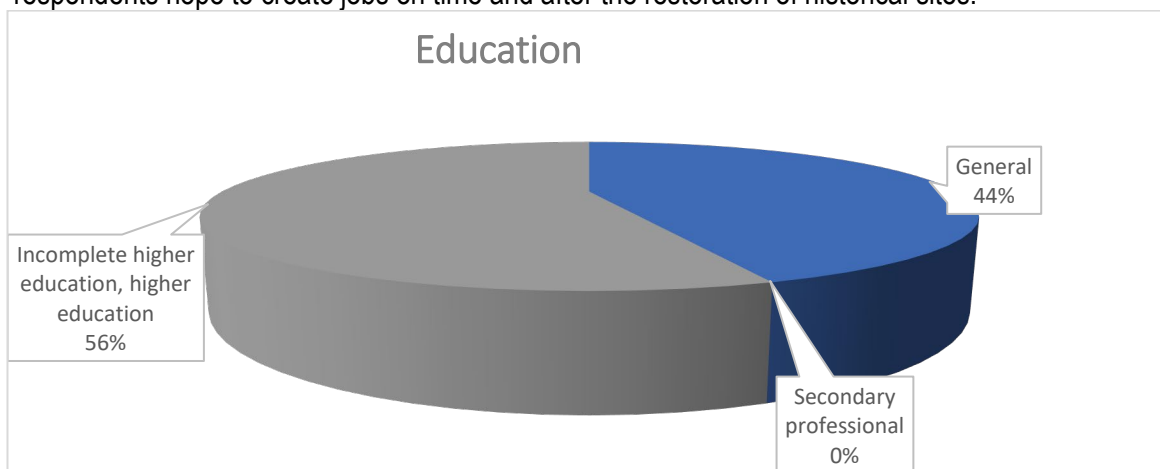


Figure 27. Education

As the social survey shows, the number of people with higher and secondary education is almost the same.

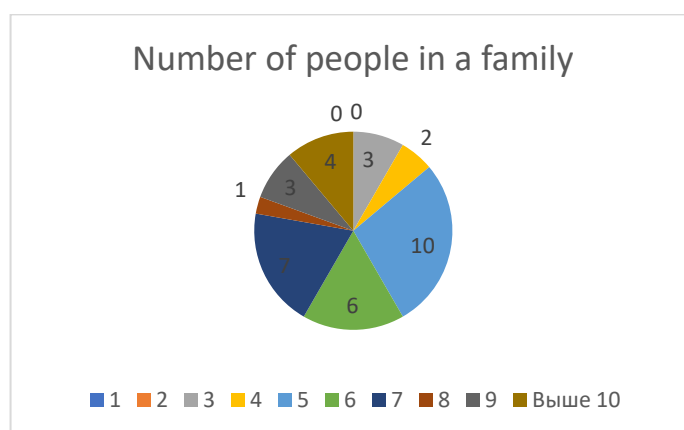


Diagram 28. Number of people in a family

The number of people in a family reflects the level of well-being of the family, so in the regions of Tajikistan there is a tendency to an increase in the number of the population due to the demographic growth of the population in the regions.

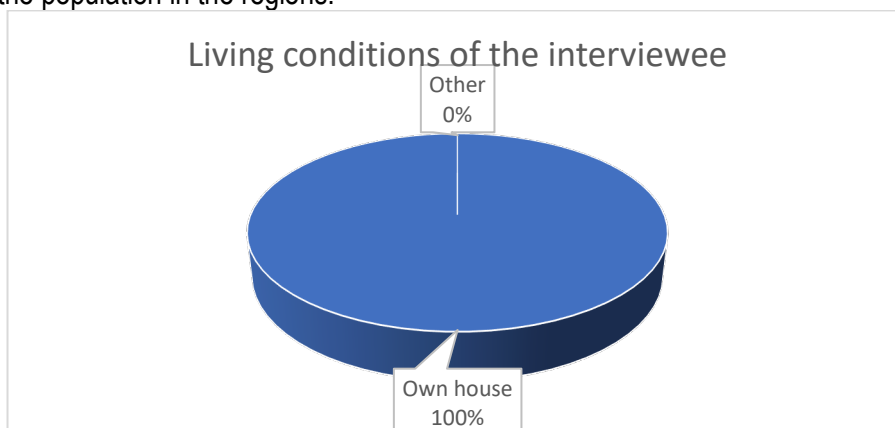


Diagram 29. Housing conditions

In the regions, it is observed that the majority of residents live in their own houses without renting other housing.

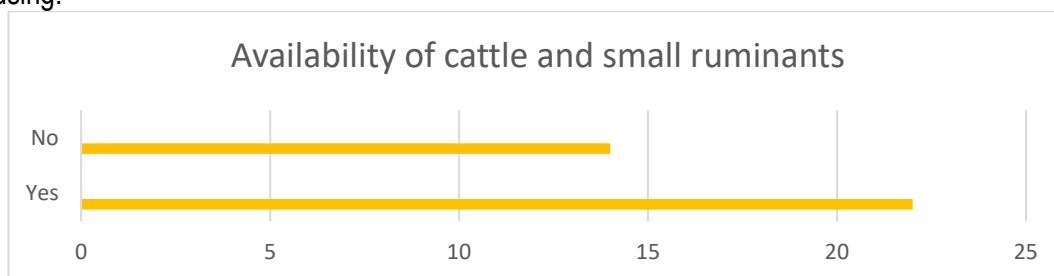


Diagram 30. Availability of cattle and small ruminants

The presence of cattle and small ruminants indicates the well-being of a population group. The presence of large and small livestock, such as cows and rams, allows you to receive passive income from the sale of derivatives (milk, wool) of these animals.

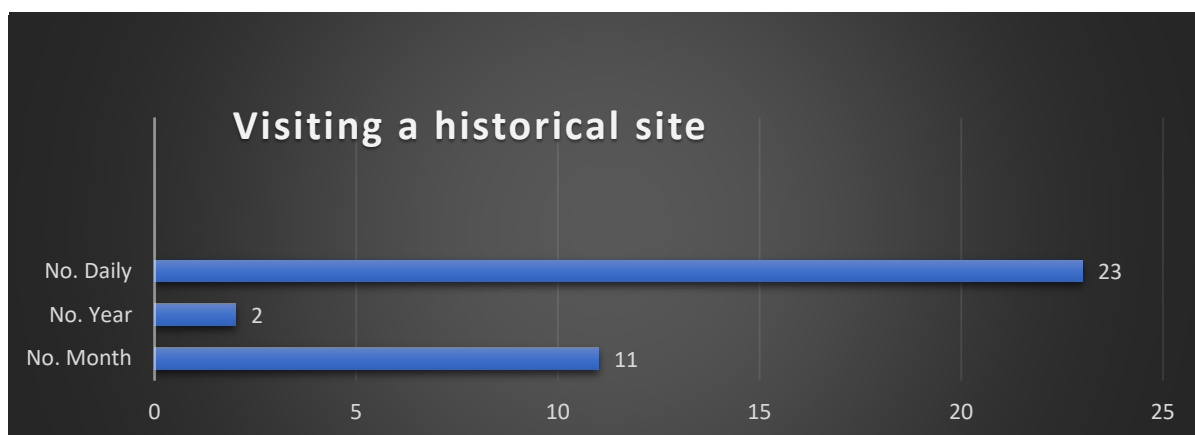


Diagram 31. Visiting a historical site

In the course of a sociological study, it became necessary to identify the attendance of a historical object among the local population, so among the respondents 23 residents visit a historical object every day, 11 residents visit it once a month and 2 residents visit it once a year. Local residents see the main problem of the lack of popularity of the object in the lack of advertising and interest among the younger generation. Some residents argue about the need to include a visit to this site in the school curriculum of local schools.

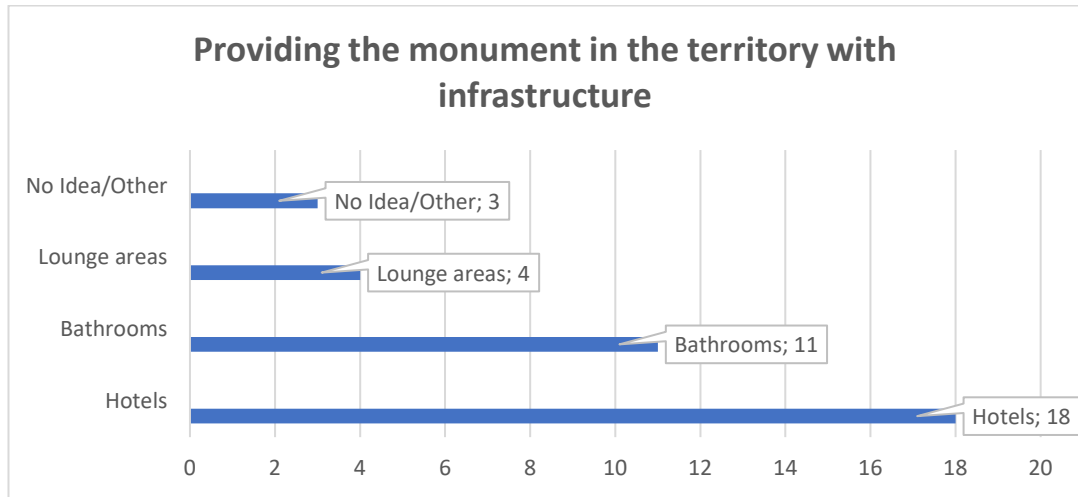


Diagram 32. Ideas for the improvement of the complex

Most of the surveyed residents point to the lack of internal infrastructure at the historical site and recommend creating conditions for a pleasant stay of tourists on the site. Residents are encouraged to create a bathroom, open a souvenir shop, a hotel, a dining room and organize an entertainment program.

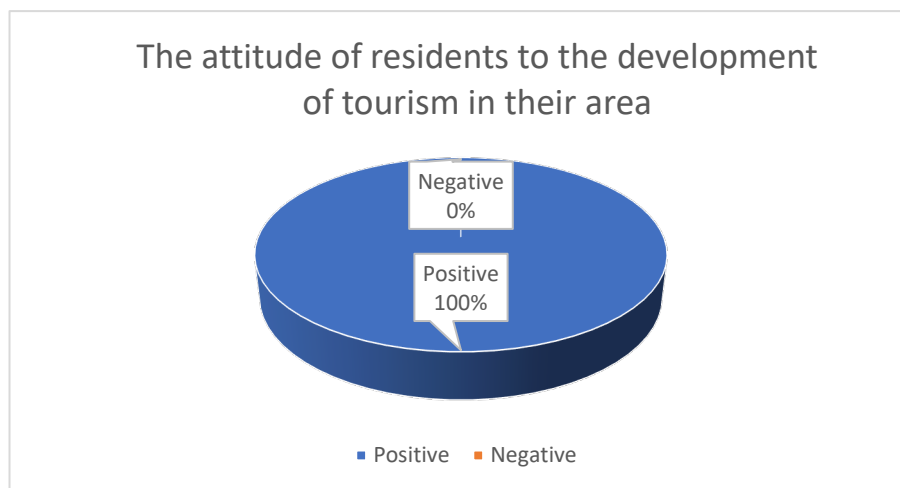


Figure 33. Attitudes towards tourism

The main idea for the development of the popularity of the historical object is presented by residents, in the form of a full-scale advertising campaign, not only in the Republic of Tajikistan, but also abroad.

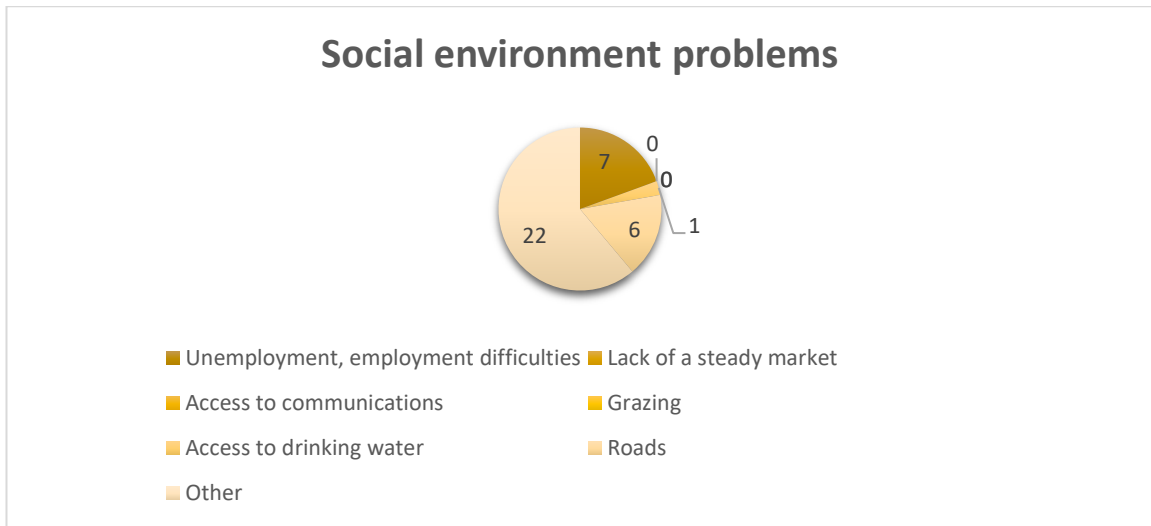


Diagram 34. Problems of the social environment

The main social problem of residents living near Khoja Mashhad is the lack of a kindergarten, pharmacy and first-aid post.

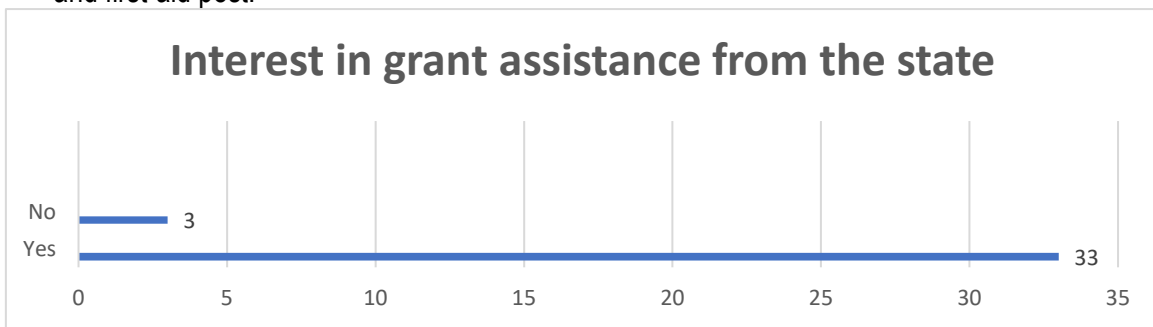


Figure 35. Interest in external assistance

Based on the survey data, 89% of the population are interested in participating in grant activities organized by the Ministry of Finance of the Republic of Tajikistan.

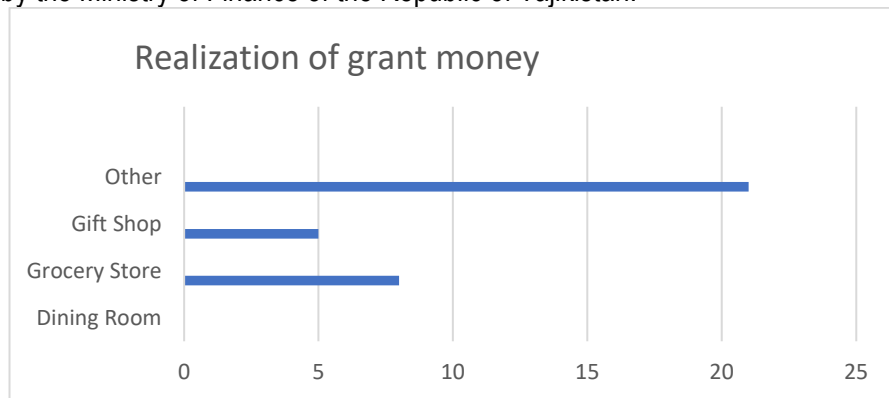


Diagram 36. Ideas for start-ups

Receiving grant assistance will allow citizens to realize their ambitions in the field of business development and will help the development of a historical site located on their territory.

Result

The population living near the historical site of Khoja Mashhad is most interested in the rehabilitation of the work of the site, in their opinion, the creation of infrastructure for visiting it will improve the well-being of the population. Most of the surveyed population hopes to attract tourists from abroad, and not the local population.

The main problem voiced by the majority of residents is the lack of internal infrastructure of the historical site, a place for recreation, a bathroom, a hotel. Creating favorable conditions and advertising an object

is the most acceptable way to attract tourists to its territory. Basically, residents complain about the lack of a kindergarten, a first-aid post and a good road.

Most of the residents of Talbak Sadridin jamoat are ready to study new professions to engage in entrepreneurial activities in their region. Also, the local population is ready to participate in startups to open their own business.

Entrepreneurship

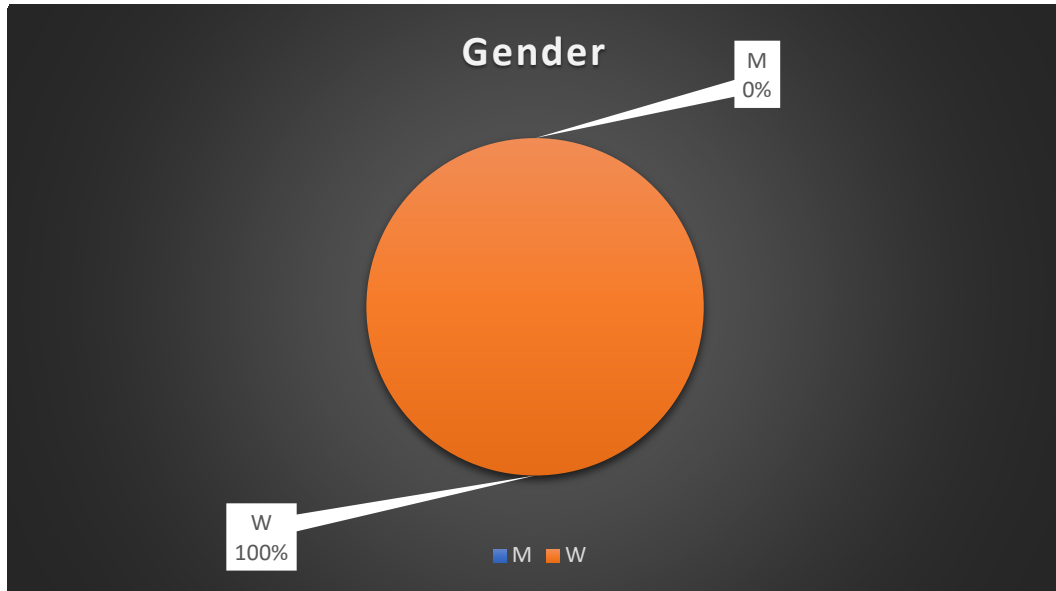


Diagram 37. Gender of survey participants

During the interview, 1 entrepreneur was interviewed, operating near Khoja Mashhad. The second entrepreneur, found near the historic site, was closed.

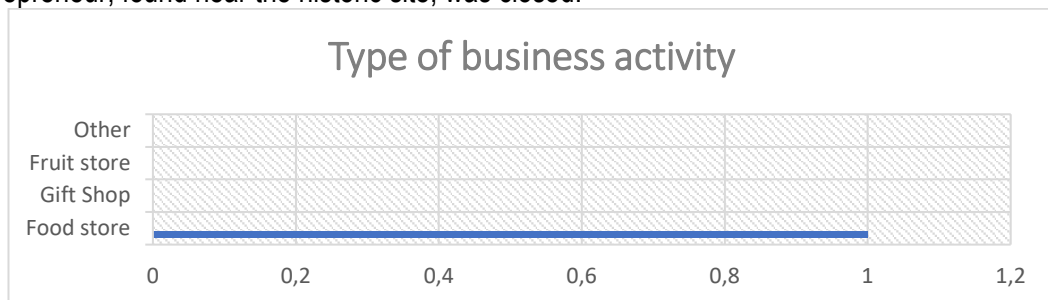


Diagram 38. Type of entrepreneurial activity

The site chosen for the interview is the only site that fulfills the needs of the population within 500 meters of the historic site.

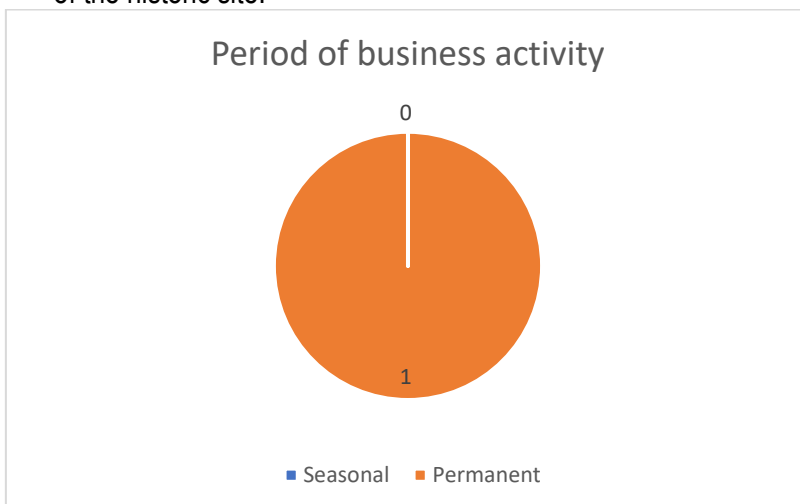


Diagram 39. Period of entrepreneurial activity

Entrepreneurial activity at the investigated object is permanent. Since it does not depend on weather conditions, and they carry out their activities depending on the needs of the population and tourists.

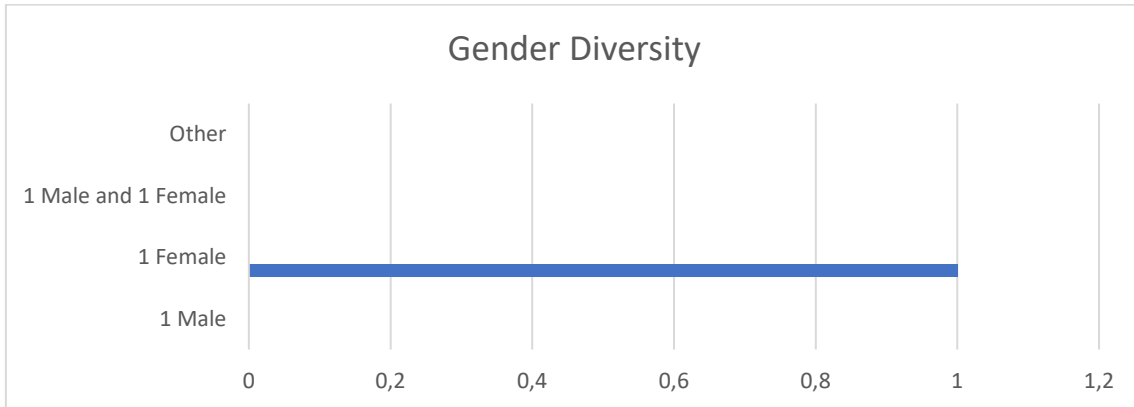


Figure 40. Gender division

Gender diversity is highly variable; women, like men, have equal rights to run and profit from a business.

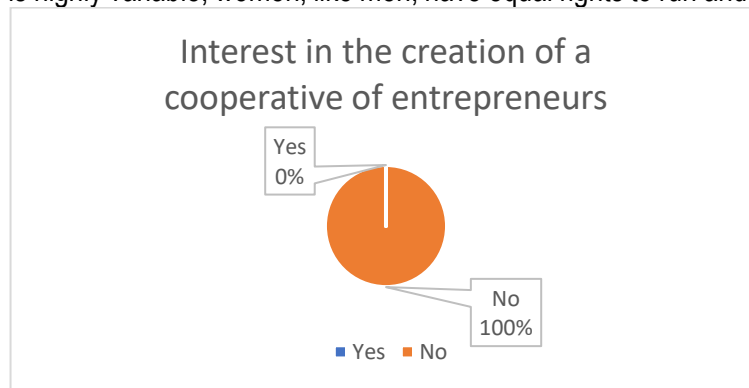


Diagram 41. Association in cooperation

Interviewed entrepreneurs do not understand the meaning of "cooperative", because of this, she had the obviously wrong opinion.



Figure 42. Access to the toilet

An entrepreneur working next to Khoja Mashhad indicates that access to the sanitary unit is present, since it is located inside her house.

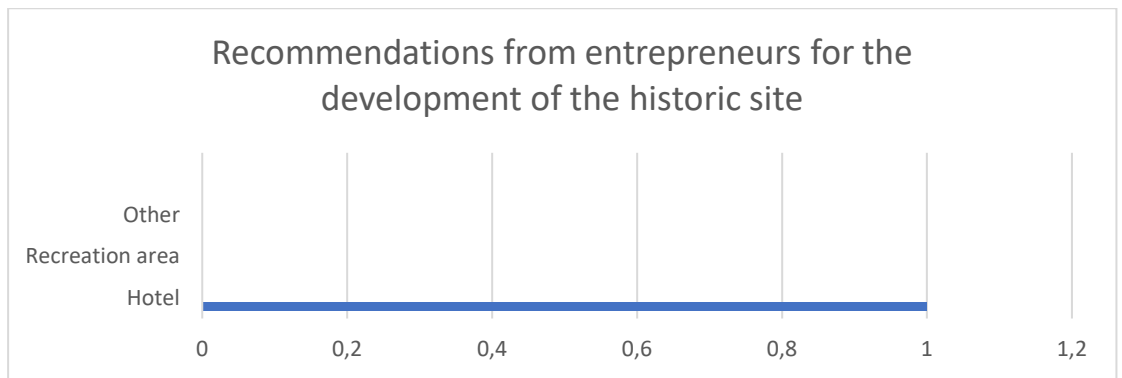


Figure 43. Recommendations for the development of entrepreneurship

Basically, the entrepreneur offered to improve the internal infrastructure of the historical site. This was mainly expressed in the construction of a WC, the improvement of paths, the construction of a hotel.

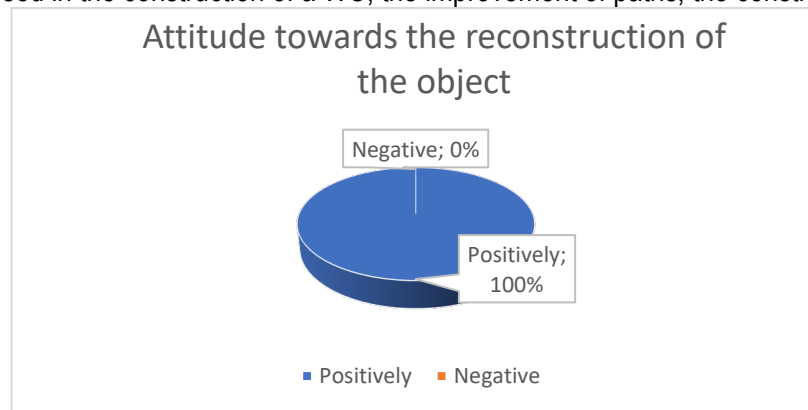


Diagram 44. Attitude towards the reconstruction of the object

The entrepreneur has a positive attitude towards the reconstruction of the object. The entrepreneur hopes that after the reconstruction of the historical object, the flow of tourists who will arrive at the historical object will increase the profit.

According to the entrepreneur, the development of a historical object is impossible without the development of its internal infrastructure, for example: the construction of a WC, a place for rest, paths, etc.

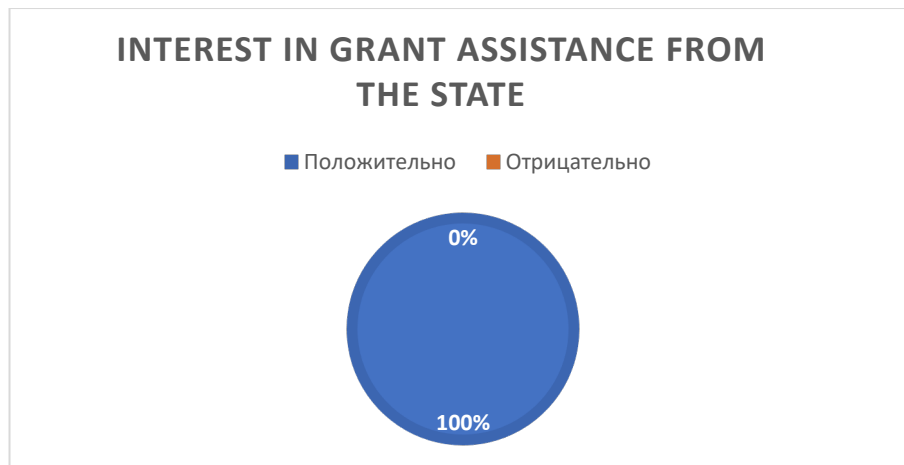


Diagram 45. Interest in grant support

From this diagram, we can see that the only interviewed entrepreneur in this area is interested in participating in grant assistance from the Ministry of Finance.

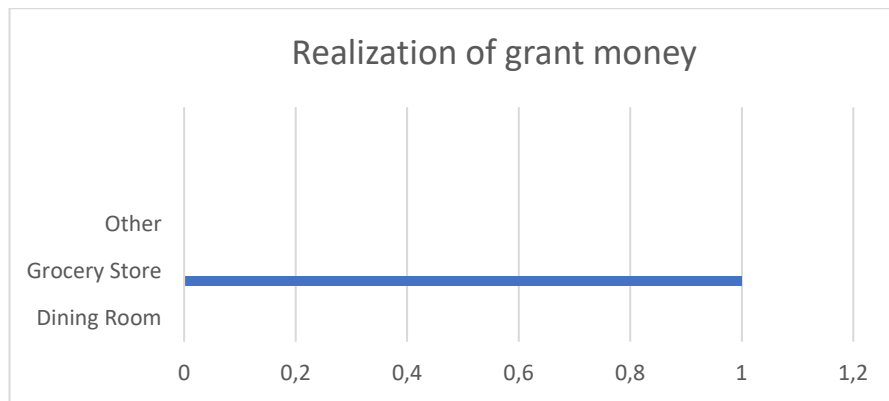


Diagram 46. Proposed activities

Result

Two entrepreneurs are present near Jamoat Talbak Sadridin (Khoja Mashhad). The interviewed entrepreneur expresses a desire to participate in the rehabilitation of the object if this leads to an improvement in his welfare.

Government representatives

During a visit to the historical site of the Khoja Mashhad mausoleum, a social survey was conducted between representatives of state authorities, namely, the deputy chairman of the hukumat of the Shaartuz district, the head of the social development and communications department of the Shaartuz district and the deputy chairman of the jamoat Talbak Sadridin.

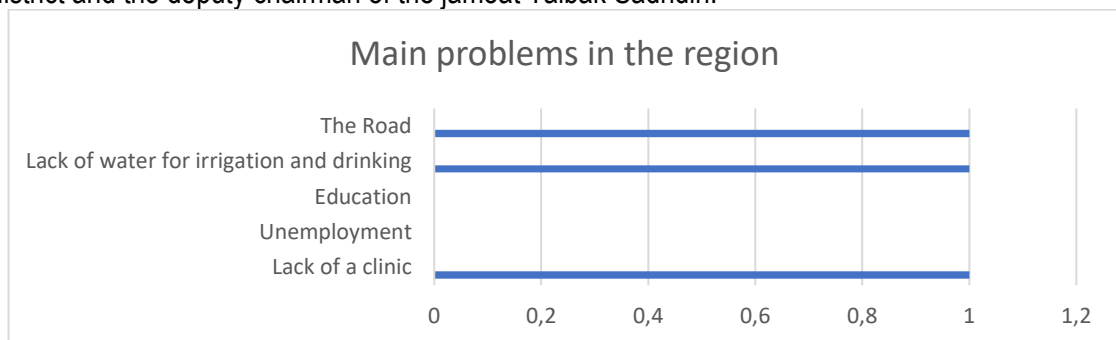


Diagram 47. Main problems in the region

According to representatives of the state authorities, the main problem in the region at the moment is the lack of a road, and due to the lack of work in the settlements, there is the question of a large number of unemployed. Government officials hope that during the period of reconstruction and operation of the historic site, there will be an opportunity to attract local residents and create new jobs.

At the moment, more than 130 thousand people live on the territory of the Shaartuz district, 18998 people live in the Talbak Sadridin jamoat, the village of Sayed near the historical object.

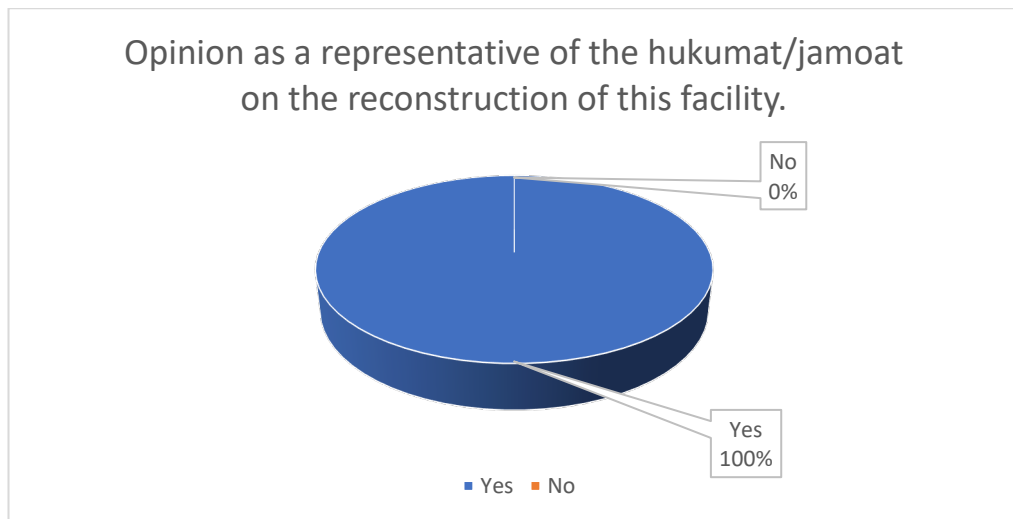


Diagram 48. Opinion of state authorities on the reconstruction of the object

All government officials expressed their full agreement on the reconstruction of the historical site. Hukumat and jamoat, to the best of their ability, are ready to provide support in the preparation of documentation and assistance in the reconstruction of the facility. Also, in the event of a possible resettlement of residents, the hukumat is ready to provide a land plot, but the hukumat's budget does not include funds for the restoration of the house.

Result

Representatives of the state authorities of the Shaartuz district of Talbak Sadridin jamoat (Khoja Mashhad) speak positively about the reconstruction of the historical object, the benefits for the districts and the city can be quite tangible. The widespread support of these bodies will make it possible to carry out the reconstruction of facilities without any particular complications. Government officials are hoping for possible job creation and infrastructure upgrades. Each region has a number of problems that need to be addressed, as unemployment is the main negative factor that exists everywhere in all regions. Attraction of tourists and government assistance will give an impetus to the local population for the development of entrepreneurship. In the event of a possible relocation of residents, the hukumat is ready to provide a land plot, but the hukumat's budget does not include funds for the restoration of the house.

Key recommendations

The main recommendations identified in the course of conducting a sociological study on the reconstruction of the Khoja Mashhad fortress are as follows:

- Development of a methodology to involve the local population in the reconstruction of the facility as builders under the supervision of a specialist;
- Adaptation of the territory next to the historical site for private commercial and creative activities, including crafts and handicrafts; arrangement of a specialized workplace (office) with auxiliary rooms and / or zones.
- Creation of a full-scale advertising campaign (foreign television, radio, newspapers, bloggers) to attract tourists;
- Creation of conditions for attracting local residents to participate in startups (information, consultation, assistance in collecting documents);
- Training local residents to work as guides on a historical site located in their area;
- Creation of a recognizable national merchandise with the symbols of a historical object;
- Training for men, women and girls in new crafts (embroidery, carpentry, blacksmithing) and holding fairs on the territory of the historical site;

- Conducting introductory lectures with the participation of experts for local residents about the significance of the historical site, and possible prospects for the population after its restoration;
- Conducting free introductory excursions for the young population;
- It is necessary to install forks on the road with information about the location of the historical object;
- Install garbage cans at the facility with separation of waste types;
- Construction of a WC in an accessible place for tourists who are visited by tourists;
- Construction of a library named after Khoja Mashhad;
- Ensure the safety of local residents in view of the ongoing reconstruction of the facility;
- There is a need to install a banner next to Khoja Mashhad, which would describe the historical significance of this object;
- Place a security post next to the facility to protect against possible looters;
- Install a speed limiter along the path of the location of the historical object;
- Reconstruction measures to ensure the availability of jobs for the local population;
- Computerization of a historical object (computer, telephone, fax modem, etc.), security systems;
- The upbringing of the younger generation (lectures, periodic performances) - ensuring the accessibility of the historical site for visiting.

Chilu Chor Chashma, Nosiri Khusrav district, Republic of Tajikistan

As a result of the collected data (relevant for 2019), the following data were revealed; the total population of the N. Khusrav district is 38.4 thousand people; households 8881; secondary education institutions 26; the total number of enterprises in the commercial and industrial sector 3; employment of the population 21616 thousand; the number of labor migrants 3749 thousand; officially registered unemployed 163.

Population

In total, in the course of the sociological survey, n = 30 residents living near Chilu Chor Chashma were interviewed.

One of the first questions that interested interviewers was the question of the age of the survey participants, thus, the sociological study of the issue was reduced to dividing the population into age groups. This indicator is the most relevant as it reflects the needs of the population. So the “aged” population generally accepted the restoration with “coolness” without seeing any prospects, while the young population saw this as an opportunity to find a job to provide for their families.

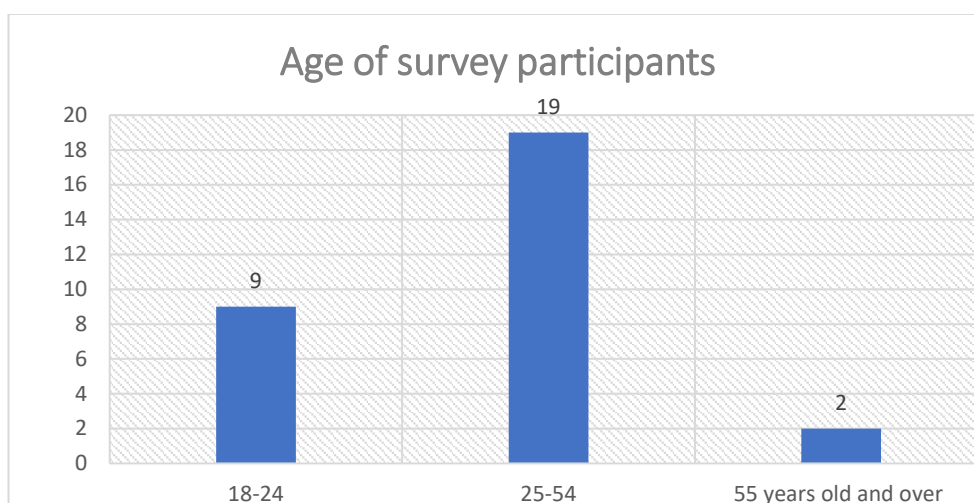


Diagram 49. Age of survey participants

The survey was conducted in the Istiklol jamoat, which is located near the location of the historical site.

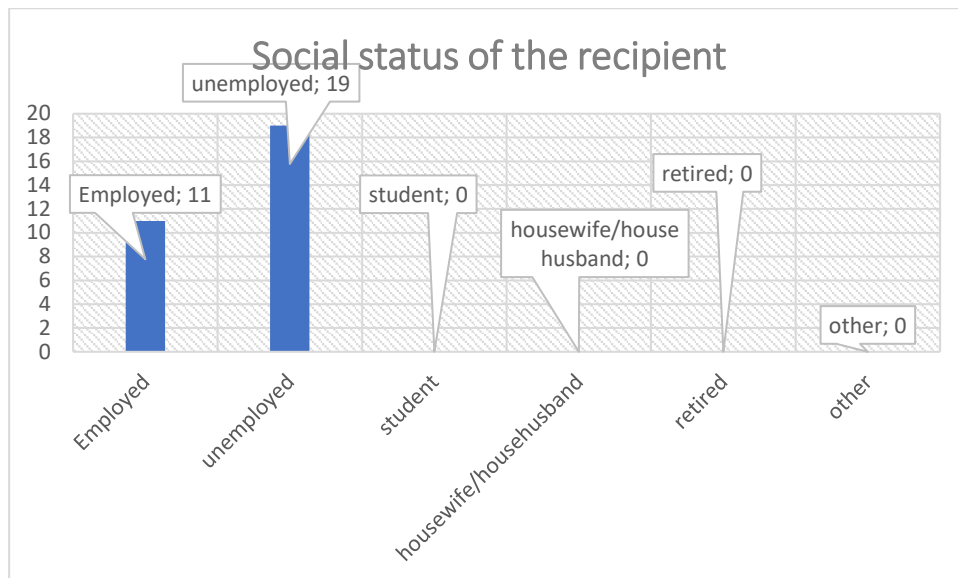


Diagram 50. Social status

The next question of interest for the interviewer was the definition of the social status of the interviewed recipients, as most of the 11 out of 30 respondents were employed and 19 were unemployed. Regional unemployment is one of the main problems of life in the regions of Tajikistan. The respondents hope to create jobs on time and after the restoration of historical sites.

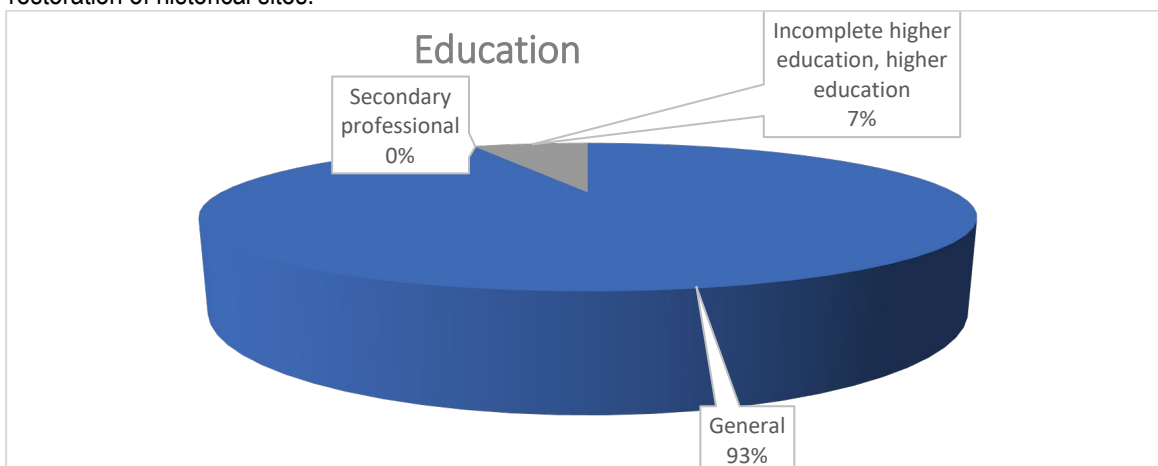


Figure 51. Education

As the social survey in this region shows, the number of people with secondary education is higher than that of residents with higher education. This indicator is expressed in the lack of access to higher education for the majority of the surveyed residents in the Nosiri Khusrav district.

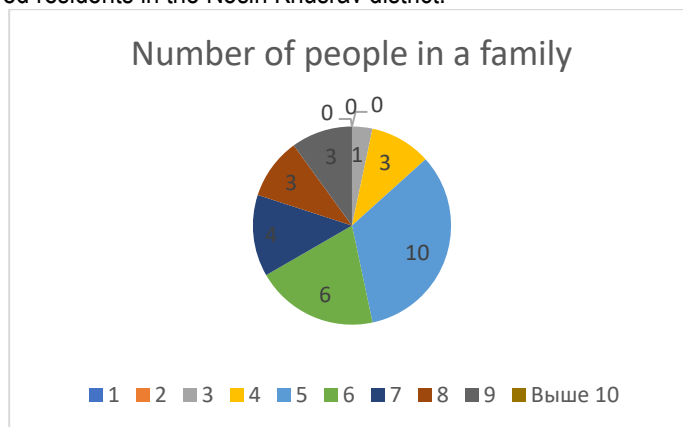


Diagram 52. Number of people in a family

The number of people in a family reflects the level of well-being of the family, so in the regions of Tajikistan there is a tendency to an increase in the number of the population due to the demographic growth of the population in the regions.

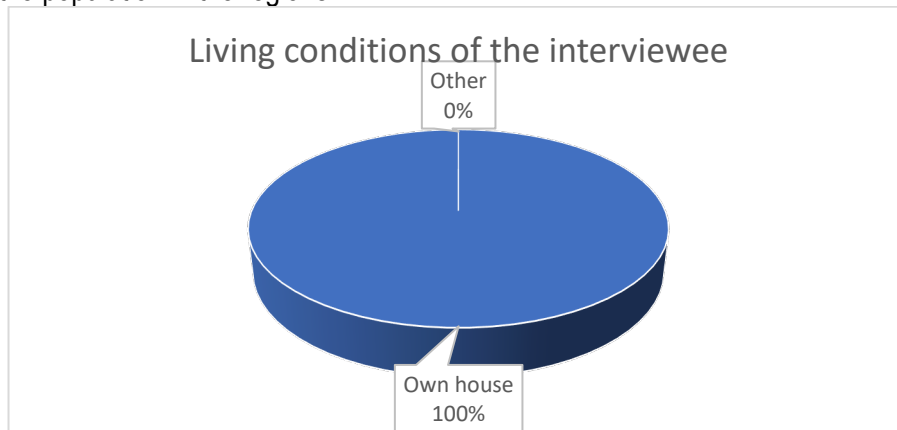


Figure 53. Housing conditions

In the regions, it is observed that the majority of residents live in their own houses without renting housing.

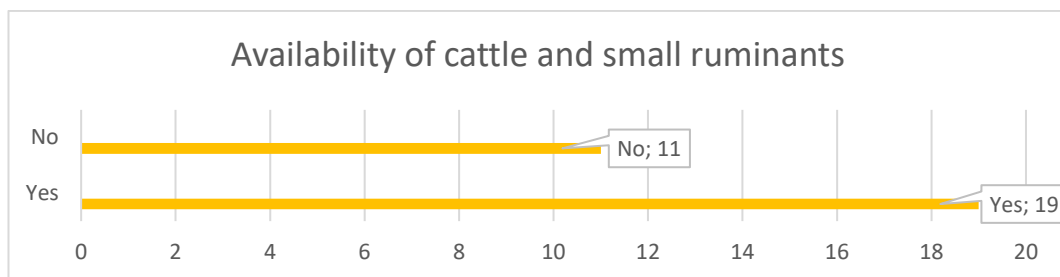


Diagram 54. Availability of cattle and small ruminants

The presence of cattle and small ruminants indicates the well-being of a population group. The presence of large and small livestock, such as cows and rams, allows you to receive passive income from the sale of derivatives (milk, wool) of these animals.

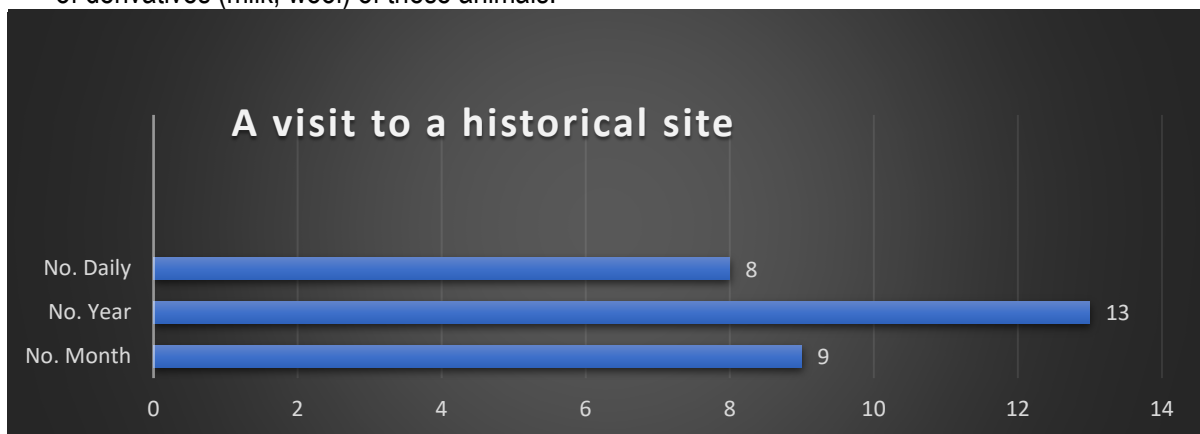


Diagram 55. Visiting a historical site

In the course of a sociological study, it became necessary to identify the attendance of a historical object among the local population, so among the respondents, 8 residents visit a historical object every day, 9 residents visit it once a month and 13 residents visit it once a year. Chilu Chor Chashma is a unique object that combines a place of religious pilgrimage and a recreation area. During the summer period, the historical site can be visited by up to 90 thousand people.

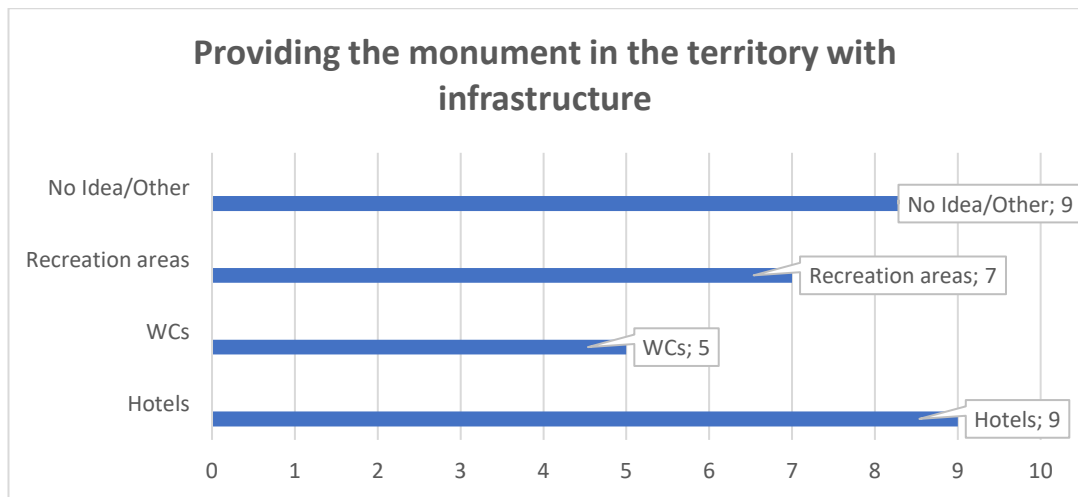


Diagram 56. Ideas for the improvement of the complex

Chilu Chor Chashma is provided with retail outlets, which were formed spontaneously around the historical site. The created retail outlets, canteens, and bathrooms do not meet the requirements of the modern content of the historical object. Bathrooms are “terrible” according to most tourists and vendors. Most of the surveyed residents point to the lack of internal infrastructure at the historical site and recommend creating conditions for a pleasant stay of tourists on the site. Residents are encouraged to create a bathroom, open a souvenir shop, a dining room and organize an entertainment program.

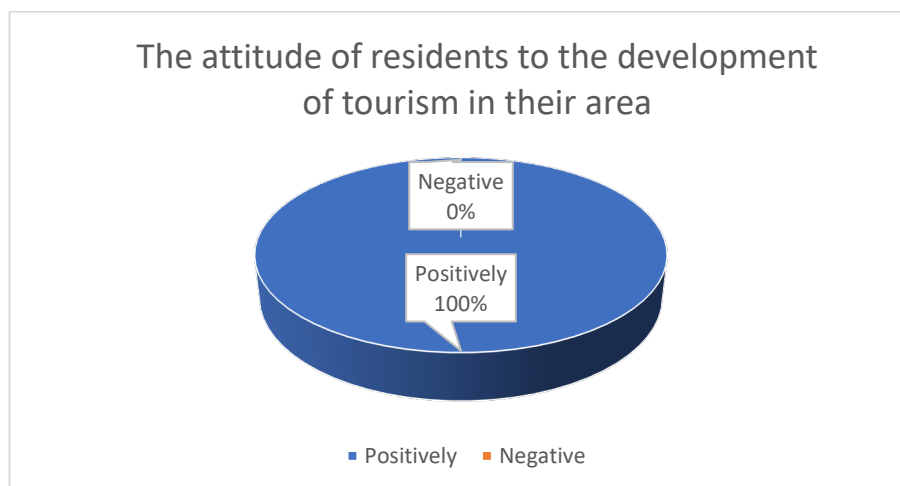


Diagram 57. Attitude towards tourism

The main idea for the development of the popularity of the historical object is presented by residents, in the form of a full-scale advertising campaign, not only in the Republic of Tajikistan, but also abroad.

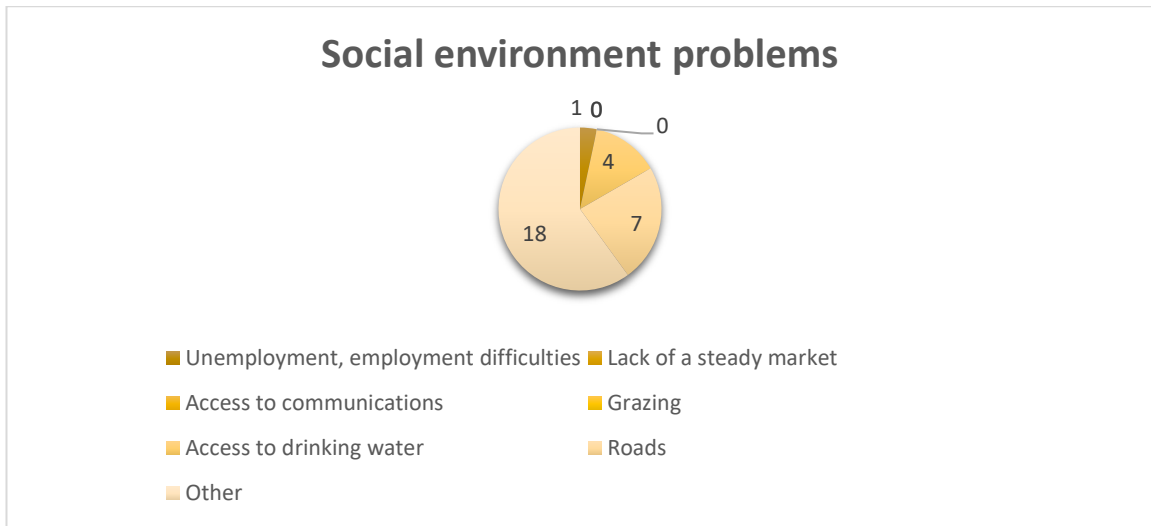


Diagram 58. Problems of the social environment

The main social problem of residents living near Chilu Chor Chashma is the lack of a good road to the historical site and adjacent jamoats.

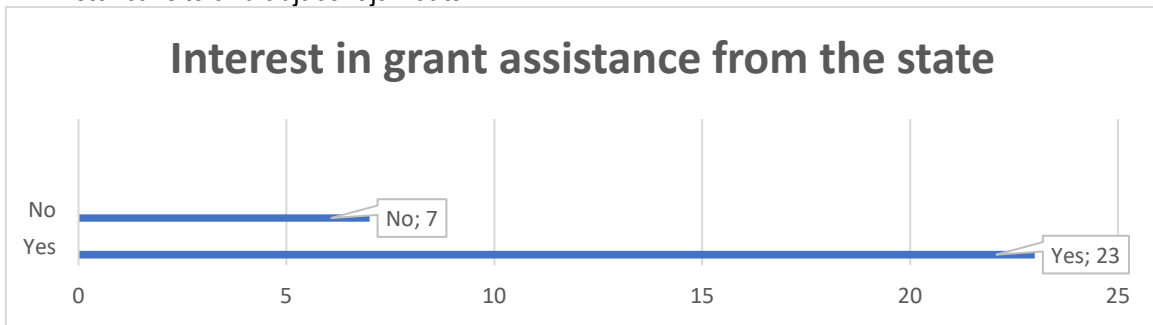


Figure 59. Interest in external assistance

Based on the survey data, 77% of the population are interested in participating in grant activities organized by the Ministry of Finance of the Republic of Tajikistan.

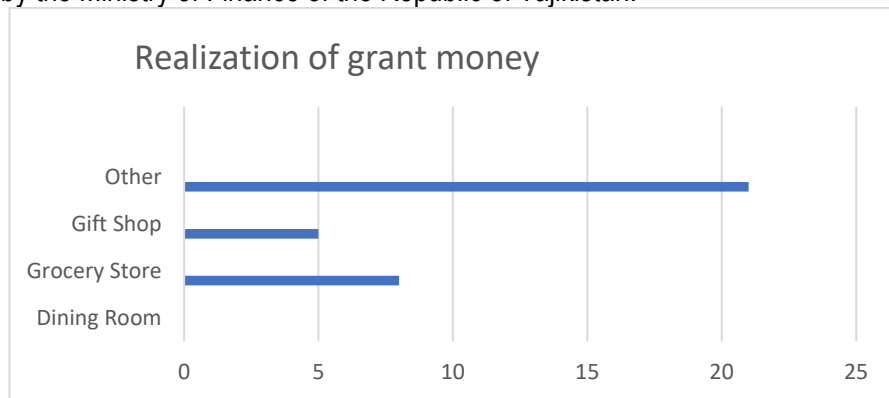


Diagram 60. Ideas for start-ups

Receiving grant assistance will allow citizens to realize their ambitions in the field of business development and will help the development of a historical site located on their territory.

Result

The unique component of the Chilu Chor Chashma historical site lies in the universal combination of the functions of a religious site and a recreation area. The population of the district does not live on the territory of the historical object and nearby. The nearest jamoat, Istiklol, was selected as interviewers. The interviewed residents openly made contact, answering the questions included in the questionnaires. The residents of the jamoat have a positive attitude to the reconstruction of the object,

in their opinion, the location of the historical object will attract not only local tourists, but will also become an important site for foreigners to visit.

The spontaneity of the emerged market near and inside the historical site raises some concerns, the combination of a religious monument and an entertainment complex erases the original value of this monument for a foreign visitor. The local population is ready to participate in startups to open their own business.

Entrepreneurship

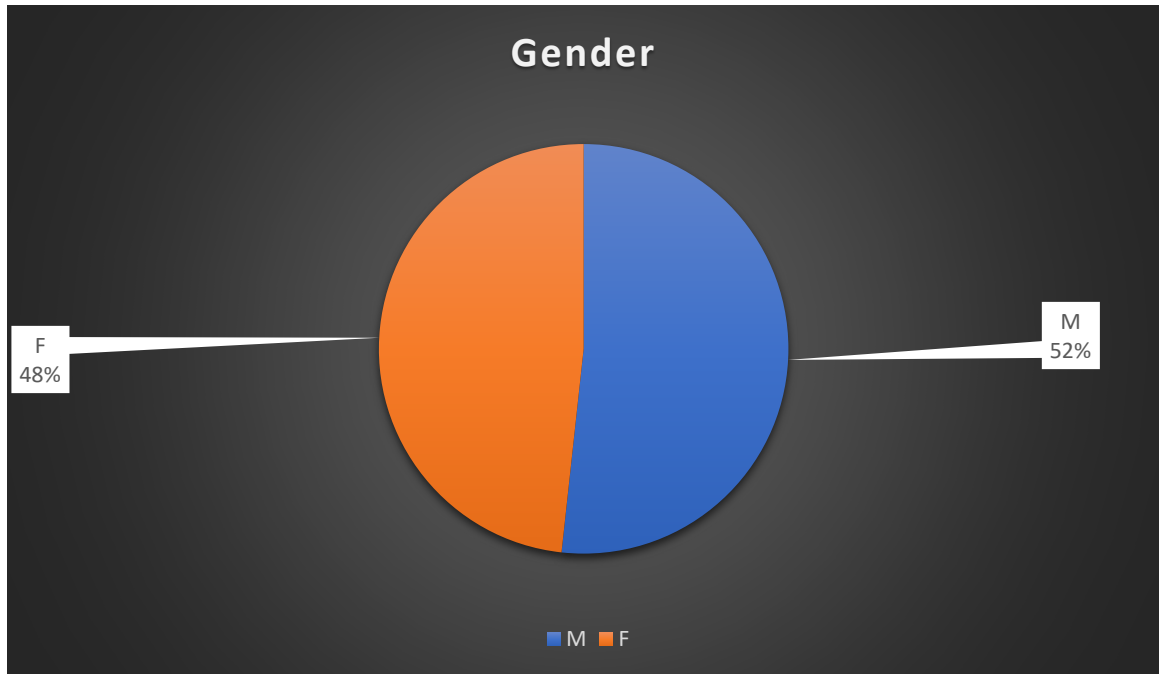


Diagram 61. Gender of survey participants

During the interview, 29 entrepreneurs were interviewed who operate near Chilu Chor Chashma. Most of the entrepreneurs openly went to discuss the questions of the questionnaire, while some refused for lack of time.

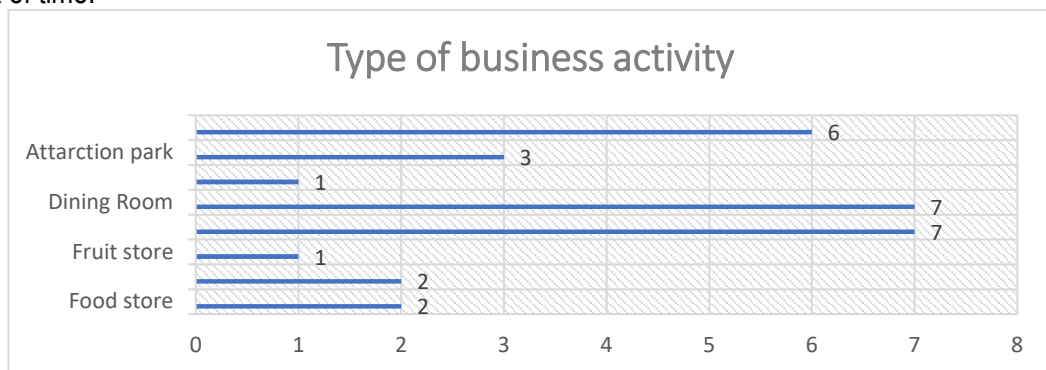


Diagram 62. Type of entrepreneurial activity

The place chosen for the interview is often visited as it is a "spontaneous" market that has arisen near and within the historical site.

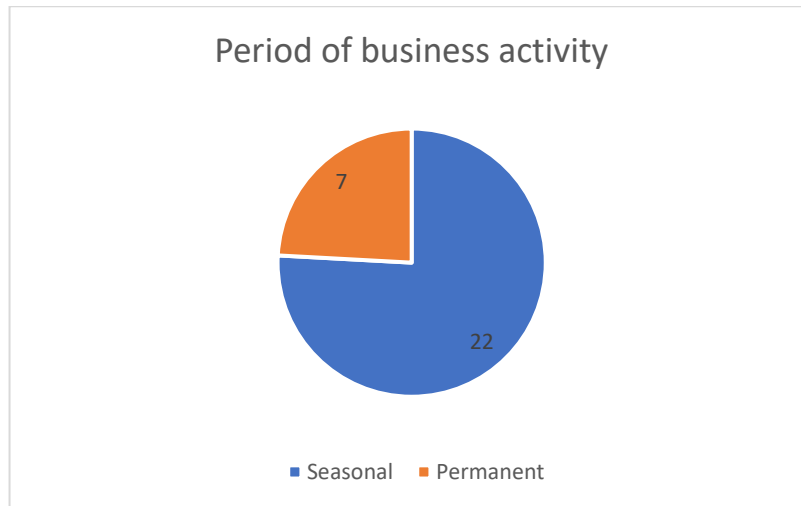


Diagram 63. Period of entrepreneurial activity

Entrepreneurial activity at the investigated object is mainly seasonal in nature. The main flow of clients falls on the period from June to September. So, according to the estimates of local entrepreneurs, up to 90 thousand people can visit the facility per day.

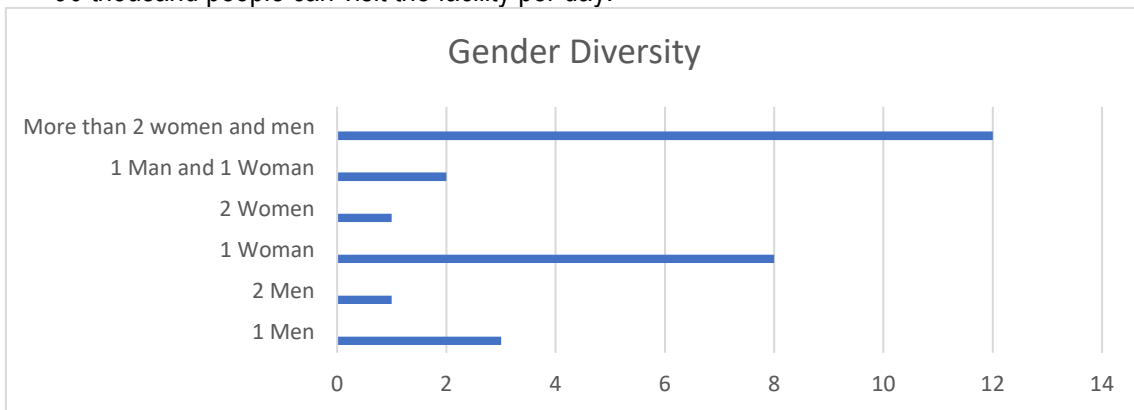


Diagram 64. Gender division

Gender diversity is highly variable; women, like men, have equal rights to run and profit from a business.

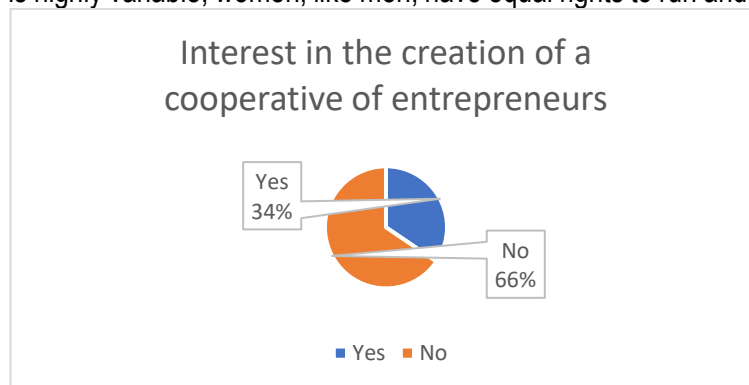


Diagram 65. Uniting into cooperation

Many entrepreneurs do not understand the meaning of the concept of "cooperative", because of this, they deliberately have a wrong opinion. Many of them think that with the creation of a cooperative they will lose their own independence and will have to reckon with the opinion of the majority.

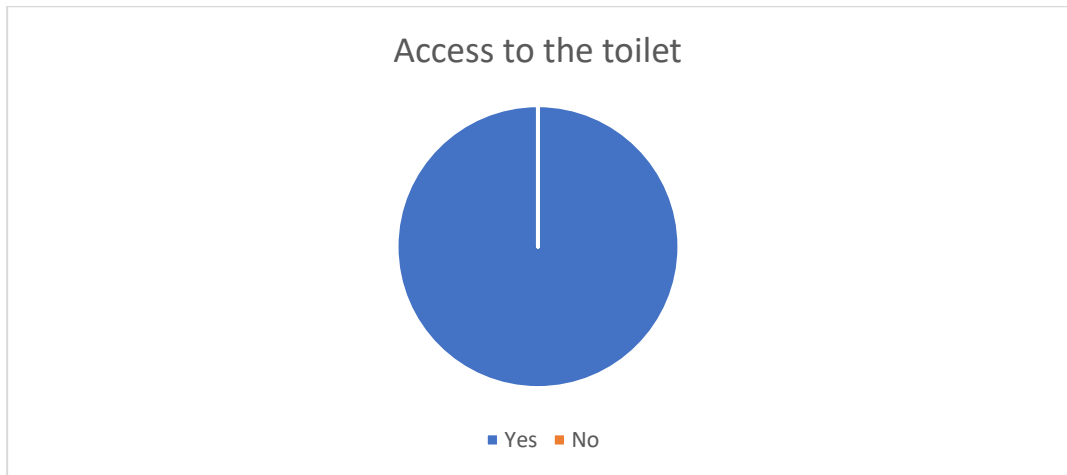


Figure 66. Access to the toilet

Entrepreneurs working at the Chilu Chor Chashma historical site indicate that access to the bathroom is present, but its sanitary condition leaves much to be desired.

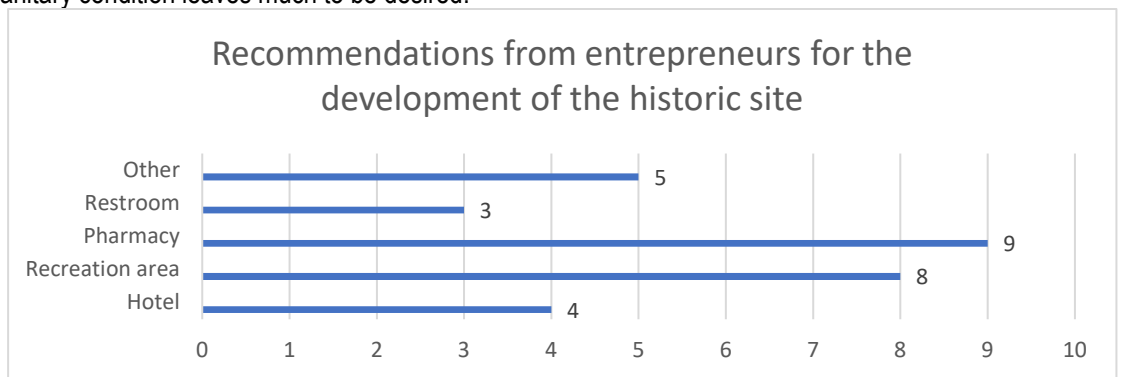


Diagram 67. Recommendations for the development of entrepreneurship

Basically, entrepreneurs offered to improve the internal infrastructure of the historical site. This was mainly expressed in the construction of a bathroom, the improvement of paths, the construction of a hotel and restaurants.

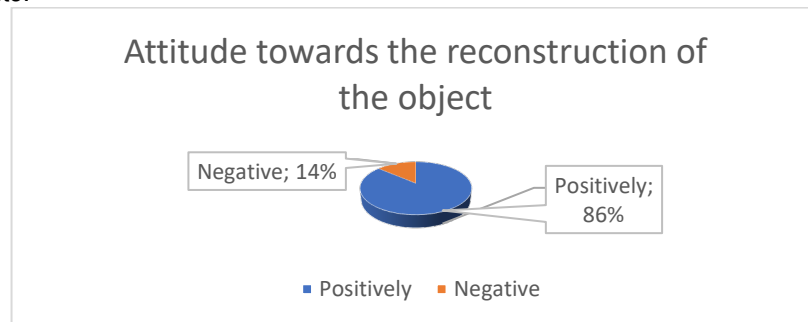


Diagram 68. Attitude to the reconstruction of the object

Entrepreneurs are generally positive about the reconstruction of the facility. The entrepreneurs hope that after the reconstruction of the historical object, the flow of tourists who will arrive at the historical object will increase their profit. Entrepreneurs who have a negative attitude to the reconstruction of the object fear that their jobs will be withdrawn, and they will be prohibited from activities on the territory of the historical object.

According to entrepreneurs, the development of a historical object is impossible without the development of its internal infrastructure, for example: the construction of a WC, places for recreation, paths, etc.

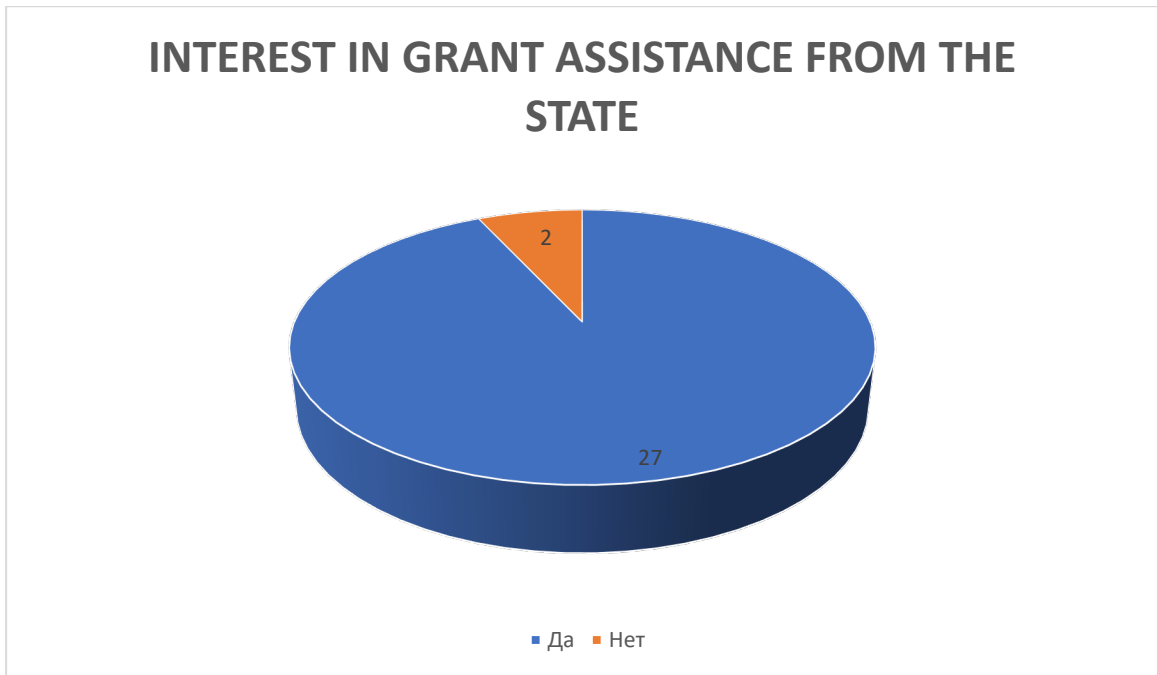


Diagram 69. Interest in grant support

From this diagram, we can see that 87% of entrepreneurs in this area are interested in participating in grant assistance from the Ministry of Finance.

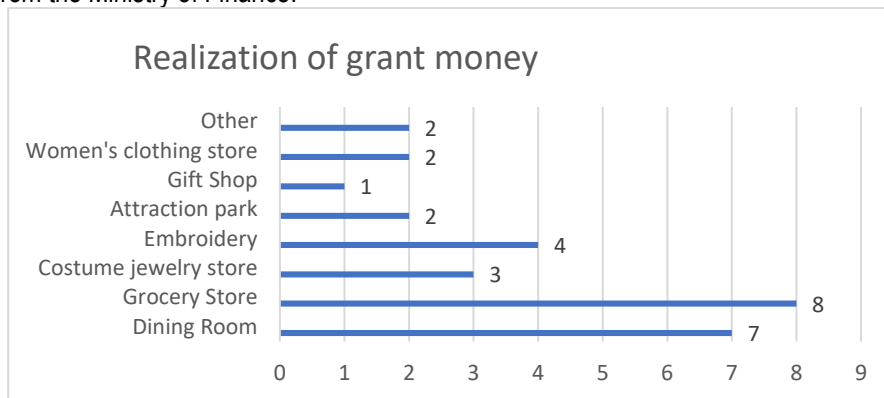


Diagram 70. Proposed activities

Result

An interesting feature of the analysis of the survey of entrepreneurs was the distribution of zones in which entrepreneurship is especially developed. So the most developed region in terms of making a profit was the Nosiri Khusrav area with its historical site Chiluchor Chashma. During the summer, this place turns into a huge complex, with many types of services, from selling ice cream to dining rooms and jewelry. This object in the short summer period can be visited by up to 90 thousand people. The interviewed entrepreneurs realize that after the reconstruction of the object it will become more popular and prepared for receiving tourists, but they still fear that their places, which for some are the only source of income, will be taken away during the reconstruction. Most of the entrepreneurs are ready to adapt to new realities, but they want special supervision over the situation related to their retail outlets. The main problems at the moment are the lack of a decent bathroom, hotels, advertising of a historical object that should be carried out abroad to attract tourists, neat paths, a place for waste, the lack of a first-aid post.

Government representatives

During the visit to the historical site of Chiluchor Chashma, a social survey was carried out between representatives of state authorities, namely the head of the apparatus of the hukumat Nosiri Khusrav, the head of the economic sector of the hukumat Nosiri Khusrav relating to the territory on which the historical site is located, the representative of the jamoat according to the rituals and traditions of the Istiklol jamoat.

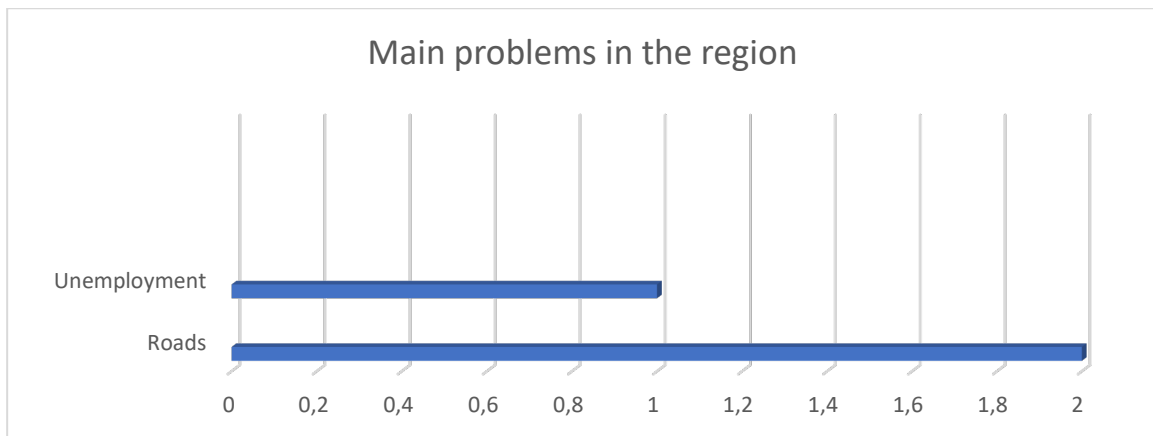


Diagram 71. Main problems in the region

According to government officials, the main problem in the region at the moment is the lack of an acceptable road route to access the historic site.

Government officials hope that during the period of reconstruction and operation of the historic site, there will be an opportunity to attract local residents and create new jobs.

At the moment, more than 42,500 thousand people live in the territory of the Nosiri Khusrav district, and 12,000 people live in the Istiklol jamoat near the historical site.

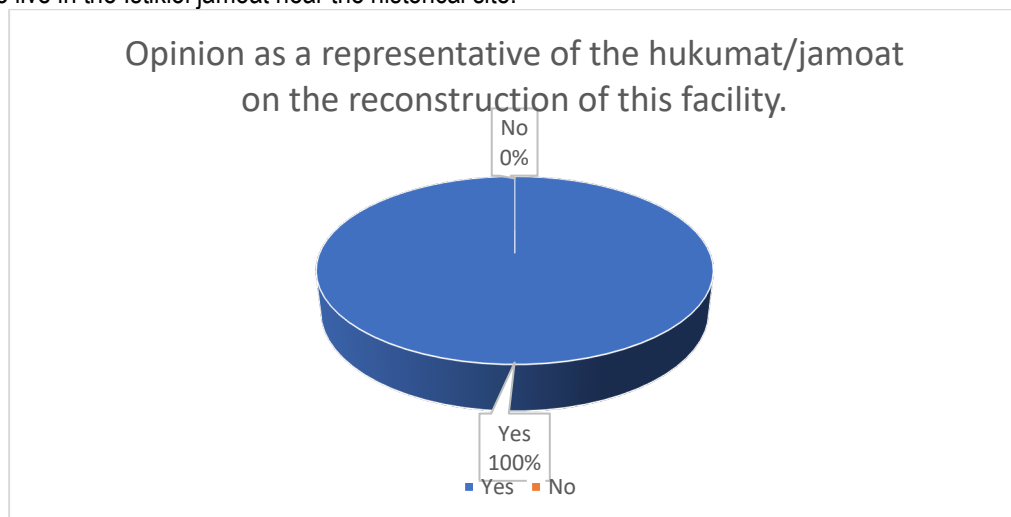


Diagram 72. Opinion of state authorities on the reconstruction of the object

All government officials expressed their full agreement on the reconstruction of the historical site.

Hukumat and jamoat, to the best of their ability, are ready to provide support in the preparation of documentation and assistance in the reconstruction of the facility. Also, in the event of a possible resettlement of residents, the hukumat is ready to provide a land plot, but the hukumat's budget does not include funds for the restoration of the house.

Result

Representatives of state authorities in the hukumat of the Nosiri Khusrav district and the Istiklol jamoat speak positively about the reconstruction of the historical object, the benefits for the districts and the city can be quite tangible. The widespread support of these bodies will make it possible to carry out the reconstruction of facilities without any particular complications. Government officials hope for the possible creation of jobs and renewal of the infrastructure of the facilities. Each region has a number of problems that need to be addressed, as unemployment is the main negative factor that exists everywhere in all regions. Attraction of tourists and government assistance will give an impetus to the local population for the development of entrepreneurship. In the event of a possible resettlement of the population during the expansion of the territory of Chilu Chor Chashma, the

hukumat Nosiri Khusrav will allocate a land plot for resettlement, but the budget of the hukumat does not provide for the construction of new houses for the resettlers.

Key recommendations

The main recommendations identified in the course of conducting a sociological study on the reconstruction of Chilu Chor Chashma are as follows:

- Development of a methodology to involve the local population in the reconstruction of the facility as builders under the supervision of a specialist;
- Adaptation of the territory next to the historical site for private commercial and creative activities, including crafts and handicrafts; arrangement of a specialized workplace (office) with auxiliary rooms and / or zones.
- Creation of a full-scale advertising campaign (foreign television, radio, newspapers, bloggers) to attract tourists;
- Creation of conditions for attracting local residents to participate in startups (information, consultation, assistance in collecting documents);
- Training local residents to work as guides on a historical site located in their area;
- Creation of a recognizable national merchandise with the symbols of a historical object;
- Training for men, women and girls in new crafts (embroidery, carpentry, blacksmithing) and holding fairs on the territory of the historical site;
- Conducting introductory lectures with the participation of experts for local residents about the significance of the historical site, and possible prospects for the population after its restoration;
- Conducting free introductory excursions for the young population;
- It is necessary to install forks on the road with information about the location of the historical object;
- Install garbage cans at the facility with separation of waste types;
- Construction of a bathroom in an accessible place for tourists who are visited by tourists;
- Ensure the safety of local residents in view of the ongoing reconstruction of the facility;
- There is a need to place a banner next to Chilu Chor Chashma, which would describe the historical significance of this object;
- Place a security post next to the facility to protect against possible looters;
- Install a speed limiter along the path of the location of the historical object;
- Reconstruction measures to ensure the availability of jobs for the local population;
- Computerization of a historical object (computer, telephone, fax modem, etc.), security systems;
- The upbringing of the younger generation (lectures, periodic performances) - ensuring the accessibility of the historical site for visiting.

Appendix 9. Results of laboratory tests

Analysis of soil and water samples

PA "Peshsaf" conducted a study of soil and water samples in the study area. Samples were taken in strict accordance with the methodology of the laboratory of the State Service for Sanitary and Epidemiological Supervision of the State Institution Center for Sanitary and Epidemiological Expertise and Control of Transport and Borders (for water), as well as the Institute of Soil Science of the Academy of Sciences of the Republic of Tajikistan (for soil).

In soil sample No. 1 "Khulbuk", taken from a depth of 0-30 cm, the amount of humus was 1.13% of the average degree of soil supply, mineral nitrogen - 31.15 mg / kg of a low degree of soil supply; the amount of active phosphorus - 26.8 mg / kg with low soil fertility; The amount of potassium replacement is on average 296 mg / kg. The environment of exchangeable hydrogen ions in the soil (pH) was 7.6, which has a low alkalinity.

Soil sample No. 2 "Khulbuk" was taken from a depth of 0-30 cm, the humus content was 1.02% of the average degree of soil supply, mineral nitrogen - 15.85 mg / kg at a very low level of soil fertility; phosphorus content 21.6 mg / kg with a high degree of soil supply; the amount of potassium was 268 mg / kg of the average degree of soil supply. The soil's exchangeable hydrogen ion environment (pH) was 7.8, which is low alkalinity.

Soil sample No. 3 "Khulbuk" was taken from a depth of 0-30 cm, the humus content was 1.12% of the average degree of soil supply, mineral nitrogen - 11.43 mg / kg at a very low level of soil fertility; phosphorus content 21.1

mg / kg high degree of soil supply; the amount of potassium is 272 mg / kg of the average degree of soil supply. The environment of exchangeable hydrogen ions in the soil (pH) 7.7, has a low alkalinity.

Soil sample No. 4 "Khulbuk" was taken from a depth of 0-30 cm, the humus content is 1.18% of the average degree of soil supply, mineral nitrogen is 30.83 mg / kg of the low degree of soil supply; phosphorus content 30.7 mg / kg low degree of soil supply; The potassium content is 308 mg / kg with a high degree of soil supply. The soil's exchangeable hydrogen ion environment (pH) was 7.8, which is low alkalinity.

Soil sample No. 5 "Khulbuk" was taken from a depth of 0-30 cm, the humus content is 1.14%, the average degree of soil supply, mineral nitrogen 22.43 mg / kg, a low degree of soil supply; phosphorus content 45.7 mg / kg average degree of soil supply; the amount of potassium is 300 mg / kg of the average degree of soil supply. The medium for the exchange of hydrogen ions in the soil (pH) was 7.7, which also has a low alkalinity.

Soil sample No. 6 "Khulbuk" was taken from a depth of 0-30 cm, the humus content is 1.07% of the average degree of soil supply, mineral nitrogen is 38.84 mg / kg of the low degree of soil supply; the phosphorus content is 42.3 mg / kg of the average degree of soil supply; the amount of potassium is 280 mg / kg of the average degree of soil supply. The medium for the exchange of hydrogen ions in the soil (pH) was 7.9, which is low alkalinity.

Soil sample No. 7 "Khulbuk" was taken from a depth of 0-30 cm, the humus content is 1.16% of the average degree of soil supply, mineral nitrogen is 17.72 mg / kg of the low degree of soil supply; phosphorus content of 29.5 mg / kg of a low degree of soil supply; the amount of potassium is 276 mg / kg of the average degree of soil supply. The medium for the exchange of hydrogen ions in the soil (pH) was 7.9, which is low alkalinity.

Soil sample No. 8 "Khulbuk" was taken from a depth of 0-30 cm, the humus content is 1.19% of the average level of soil supply, mineral nitrogen is 40.18 mg / kg of the average level of soil fertility; the phosphorus content is 42.0 mg / kg of the average degree of soil provision; the amount of potassium 300 mg / kg - the average degree of soil supply. The soil's exchangeable hydrogen ions (pH) are 7.8 degrees below low alkalinity.

Soil sample No. 9 "Khulbuk" was taken from a depth of 0-30 cm, the humus content is 1.18%, the average degree of soil supply, mineral nitrogen 38.71 mg / kg, low degree of soil supply; phosphorus content 38.6 mg / kg of a moderate degree of soil supply; the amount of potassium is 276 mg / kg, soil fertility is average. The soil exchangeable hydrogen ion environment (pH) in the soil environment was 7.7, which is low alkalinity.

Soil sample No. 10 "Khulbuk" was taken from a depth of 0-30 cm, the humus content was 1.03%, the average level of soil fertility, mineral nitrogen is 10.73 mg / kg of a very low degree of soil supply; the phosphorus level of 33.7 mg / kg is too low; the amount of potassium is 268 mg / kg of the average degree of soil supply. The medium for the exchange of hydrogen ions in the soil (pH) was 7.9, which is low alkalinity.

The final conclusion on the analysis of the soil can be made as "land that is not very suitable for agriculture, due to the low level of soil fertility." In the case of landscape planning and planting additional green spaces, additional reclamation work is required.

The result of agrochemical analysis of soil samples from the Vose region, found that the soils have a low and medium content of minerals. It is recommended to use mineral and organic fertilizers for soil samples with low nutrient content with the following criteria:

- Before carrying out autumn plowing in soil samples with a low humus content, apply organic fertilizers at the rate of 15-20 t / ha.
- Nitrogen-phosphorus mineral fertilizer - P100x2.2. = 220 kg / ha.
- Potassium chloride mineral fertilizer - K 100x1.8 = 180 kg / ha.
- Nitrate fertilizer - N120x2.9 = 348 kg / ha.

Table 8. Results of analysis of soil samples to determine the amount of humus, pH and nutrients.

No.	Sampling location	Depth cm	Humus,%	NS	mg / kg
-----	-------------------	----------	---------	----	---------

					NN03	NN ^ 4	NN03	R 2 O 5	K 2 O
	Vose, Khatlon						+ NN ^ 4		
1	Sample 1 Hulbuk	0-30	1.13	7.6	5.0	38.5	31.15	26.8	296
2	Sample 2 Hulbuk	0-30	1.02	7.8	3.2	19.4	15.85	21.6	268
3	Sample 3 Hulbuk	0-30	1.12	7.8	3.0	13.8	11.43	21.1	272
4	Sample 4 Hulbuk	0-30	1.18	7.8	11.2	36.3	30.83	30.7	308
5	Sample 5 Hulbuk	0-30	1.14	7.8	3.7	27,7	22.43	45.7	300
6	Sample 6 Hulbuk	0-30	1.07	8.0	7.3	47.7	38.84	42.3	280
7	Sample 7 Hulbuk	0-30	1.16	7.9	3.2	21.8	17.72	29.5	276
8	Sample 8 Hulbuk	0-30	1.19	7.9	2.5	50.8	40.18	42.0	300
9	Sample 9 Hulbuk	0-30	1.18	7.9	3.6	48.6	38.71	38.6	276
10	Sample 10 Hulbuk	0-30	1.03	7.9	3.0	12.9	10.73	33,7	268

Water analyzes at the site showed, in general, the suitability of water use for drinking needs. Below is the analysis.

Table 9. Analyzes of water samples in the territory of the Khulbuk fortress

					Person form code _____	
					Facility code by RUKT _____	
Ministry of Health and Social Protection of the Republic of Tajikistan				Medical certificate form No. 167 approved by order of the Ministry of Health and Social Protection of the Republic of Tajikistan "03" October 2015 No. 840		
Main Department of State Sanitary and Epidemiological Surveillance						
Protocol No. 36						
Drinking water research						
June 24, 2021						
Sampling location	Hulbuk					
Name of the water source	Spring water					
Date and time of sampling						
Indicators	unit of measurement	Analysis results	Norms of territorial permissible concentrations	Sanitary Rules and Norms (SNaR) 2.1.4.004.07		
General indicators						
Smell	Points	0	No more 2-3	// - //		
Smack	Points	0	No more 2-3	// - //		

Chromaticity	Degrees	5	Not more than 30	// - //
Turbidity	mg / l		No more than 2	// - //
Ammonia	mg / l	absent	-	
Subsidence	mg / l		-	// - //
Nitrates (NO ₃)	mg / l	0.96	Not more than 45	// - //
Nitrite	mg / l	0.00	Not more than 3	// - //
Hydrogen exponent	units PH	7.8	Within 6-9	// - //
Total mineralization (dry residue)	mg / l	650	1000 (1500) g	// - //
Hardness General	mol / L	8.0	7.0 (10.0) g	// - //
Chlorine residues	mg / l		0.3-0.5	// - //
Hydro carbonates	mg / l	427.14	1000	// - //
Alkalinity	mg / l	7.0	-	// - //
Phenolic index	mg / l		0.25	// - //
Inorganic substances				
Aluminum (Al + 3)	mg / l		0.5	// - //
Calcium	mg / l	38	30 \ 140	// - //
Barium (Ba + 2)	mg / l		0.1	// - //
Beryllium (Be + 2)	mg / l		0.0002	// - //
Boron (B, total)	mg / l		0.5	// - //
Iron (Fe, total)	mg / l		0.3 (1.0) 2	// - //
Cadmium (Cd, total)	mg / l		0.001	// - //
Manganese (Mn, total)	mg / l		0.1 (0.5) 2	// - //
Copper (Cu, total)	mg / l		1.0	// - //
Molybdenum (Mo, total)	mg / l		0.25	// - //
Arsenic (As, total)	mg / l		0.05	// - //
Nickel (Ni, total)	mg / l		0.1	// - //
Magnesium	mg / l	51.0	20 \ 85	// - //
Mercury (Hg, total)	mg / l		0.0005	// - //
Lead (Pb, total)	mg / l		0.03	// - //
Selenium (Se, total)	mg / l		0.01	// - //

Strontium (Sr + 2)	mg / l		7.0	// - //
Sulfates (SO4 -2)	mg / l	400	500	// - //
Fluorides (F)	mg / l			// - //
In high altitude conditions	mg / l		1.5	// - //
In mid-mountain conditions	mg / l		1,2	// - //
In the valley	mg / l		0.7	// - //
Chlorides (Cr -1)	mg / l	340	350	// - //
Chromium (Cr +6)	mg / l		0.05	// - //
Cyanide (SN)	mg / l		0.035	// - //
Zinc (Zn +2)	mg / l		5.0	// - //
Organic matter				
HCCH (lindane)	mg / l		0.002 3)	// - //
DDT (sum of isomers)	mg / l		0.002 3)	// - //
2.4 D	mg / l		0.03 3)	// - //
Full name of the artist	Narzulloev M.			
The conclusion of the sanitary doctor				
			The study of a water sample for the study of physicochemical and organoleptic indicators complies with the requirements of SPN 2.1.4.004.07	
Full name and signature of the head of the communal hygiene department			Alidzhaev H.	

Table 10. Results of the test for aquatic microbiology

State Service for Sanitary and Epidemiological Supervision State Institution "Center for Sanitary and Epidemiological Expertise and Control of Transport and Borders"	Medical certificate form No. 210 approved by order of the Ministry of Health and Social Protection of the Republic of Tajikistan "03" October 2015 No. 840
Aquatic Microbiology Test	
06/23/2021	
Organization	Peshsaf

Responsible person		Radjabov Ulugbek			
Sample location		R. Vose, Hulbuk			
Date of sample receipt		23-06-2021			
Sample issue date		23-06-2021			
No.	Sample name	MUM	Coli index	Koli-titer	Intestinal Pathogens
67	Spring water	50	3	333	Not detected
Date of submission of the result		06/29/2021			
Doctor-bacteriologist		3.Yunusova			
Conclusion		The study of a water sample for the study of bacteriological indicators complies with the requirements of SPN 2.1.4.004.07			

Analysis of soil and water samples

PA "Peshsaf" conducted a study of soil and water samples in the study area. Samples were taken in strict accordance with the methodology of the laboratory of the State Service for Sanitary and Epidemiological Supervision of the State Institution Center for Sanitary and Epidemiological Expertise and Control of Transport and Borders (for water), as well as the Institute of Soil Science of the Academy of Sciences of the Republic of Tajikistan (for soil).

In the soil sample No. 1 "Khoja Mashhad" was taken from a depth of 0-30 cm, the amount of humus was 1.17% of the average degree of soil supply, mineral nitrogen - 48.89 mg / kg of the average degree of soil supply; phosphorus content 22.9 mg / kg with a high degree of soil supply; the amount of potassium is 316 mg / kg with a high degree of soil supply. The soil hydrogen ion exchange (pH) environment is 7.9, which has a low alkalinity.

Soil sample No. 2 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content is 0.87% with a low degree of soil supply, mineral nitrogen 25.73 mg / kg of soil with a low degree of soil supply; phosphorus content 25.5 mg / kg; the amount of potassium is 292 mg / kg. The soil exchangeable hydrogen ion environment (pH) was 8.0, which is low alkalinity.

Soil sample No. 3 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content is 1.13% of the average degree of soil supply, mineral nitrogen is 26.08 mg / kg of the low degree of soil supply; the amount of phosphorus is 45.4 mg / kg of the average degree of soil supply; The potassium content

averaged 284 mg / kg. The environment of exchangeable hydrogen ions in the soil (pH) was 7.6, which has a low alkalinity.

Soil sample No. 4 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content is 1.27% of the average level of soil fertility, mineral nitrogen 34.11 mg / kg of the low degree of soil supply; the amount of phosphorus is 43.8 mg / kg of the average degree of soil supply, and the amount of potassium is 276 mg / kg of the average degree of soil supply. The medium of exchangeable hydrogen ions in the soil (pH) has a low alkalinity of 7.9.

Soil sample No. 5 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content was 1.16% of the average degree of soil supply, mineral nitrogen - 17.44 mg / kg of the low degree of soil supply; phosphorus content 45.7 mg / kg average degree of soil supply; the amount of potassium is 272 mg / kg of the average degree of soil supply. The environment of the exchangeable hydrogen ions of the soil in the soil (pH) was 7.5, which is low alkalinity.

Soil sample No. 6 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content is 1.19% of the average degree of soil supply, mineral nitrogen is 35.53 mg / kg of the low degree of soil supply; phosphorus content 43.1 mg / kg average degree of soil supply; the amount of potassium averaged 240 mg / kg. The environment of exchangeable hydrogen ions of the soil in the soil (pH) was 7.4, which is also the level of neutral alkalinity.

Sample No. 7 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content is 1.21% of the average level of soil supply, mineral nitrogen is 36.50 mg / kg of the average level of soil fertility; phosphorus content 44.5 mg / kg moderate degree of soil supply; potassium content - 268 mg / kg average degree of soil supply. The medium of exchangeable soil hydrogen ions (pH) is 7.3, has neutral alkalinity.

Soil sample No. 8 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content is 1.22% of the average degree of soil supply, mineral nitrogen is 32.21 mg / kg of the low degree of soil supply; the amount of phosphorus is 38.4 mg / kg of a low degree of soil supply; the average potassium content is 260 mg / kg. The medium of exchangeable hydrogen ions in the soil (pH) 7.5, has a low alkalinity.

Soil sample No. 9 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content is 1.13%, the average degree of soil supply, mineral nitrogen 28.62 mg / kg, the level of soil fertility is low; the amount of phosphorus in the average degree of soil supply is 37.5 mg / kg; the amount of potassium is 258 mg / kg of the average degree of soil supply. The environment of the exchangeable hydrogen ions of the soil in the soil (pH) was 7.5, which is low alkalinity.

Soil sample No. 10 "Khoja Mashhad" was taken from a depth of 0-30 cm, the humus content is 1.15% of the average degree of soil supply, mineral nitrogen is 27.83 mg / kg of the low degree of soil supply; the phosphorus content is 42.3 mg / kg of the average degree of soil supply; the amount of potassium is 280 mg / kg, the level of soil fertility is also average. The soil's exchangeable hydrogen ion environment (pH) was 7.8, which is low alkalinity.

The result of an agrochemical analysis of soil samples from the Shaartuz region, found that the soils have a low and medium content of mineral substances. It is recommended to use mineral and organic fertilizers for soil samples with low nutrient content with the following criteria:

- Before carrying out autumn plowing in soil samples with a low humus content, apply organic fertilizers at the rate of 15-20 t / ha.
- Nitrogen-phosphorus mineral fertilizer - P100x2.2. = 220 kg / ha.
- Potassium chloride mineral fertilizer - K 100x1.8 = 180 kg / ha.
- Nitrate fertilizer - N120x2.9 = 348 kg / ha.

Table 13. Results of analysis of soil samples to determine the amount of humus, pH and nutrients.

No.	Sampling location	Depth cm	Humus,%	NS	mg / kg				
					NN03	NN ^ 4	NN03	R 2 O 5	K 2 O
	Shaartuz, Khatlon						+ NN ^ 4		
1	Sample 1 Khoja Mashhad	0-30	1.17	7.9	4.1	61.5	48.89	22.9	316
2	Sample 2 Khoja Mashhad	0-30	0.87	8.0	4.5	31.7	25.73	25.5	292
3	Sample 3 Khoja Mashhad	0-30	1.13	7.6	28.6	25.2	26.08	45.4	284
4	Sample 4 Khoja Mashhad	0-30	1.27	7.9	4.3	42.5	34.11	43.8	276
5	Sample 5 Khoja Mashhad	0-30	1.16	7.4	8.2	20.0	17.44	45.7	272
6	Test 6 Khoja Mashhad	0-30	1.19	7.4	8.6	43.1	35.53	43.1	240
7	Test 7 Khoja Mashhad	0-30	1.21	7.0	43.3	47.1	46.50	44.5	268
8	Test 8 Khoja Mashhad	0-30	1.22	7.5	6.6	39.4	32.21	38.4	260
9	Test 9 Khoja Mashhad	0-30	1.13	7.5	4.5	35.4	28.62	37.5	258
10	Test 10 Khoja Mashhad	0-30	1.15	7.8	32.9	26.2	27.73	42.3	280

Water analyzes at the site showed, in general, the suitability of water use for drinking needs. Below is the analysis.

Table 14. Analyzes of water samples on the territory of the Khoja Mashhad complex

					Person form code _____	
					Facility code by RUKT _____	
Ministry of Health and Social Protection of the Republic of Tajikistan				Medical certificate form No. 167 approved by order of the Ministry of Health and Social Protection of the Republic of Tajikistan "03" October 2015 No. 840		
Main Department of State Sanitary and Epidemiological Surveillance						
Protocol No. 35						
Drinking water research						
June 24, 2021						
Sampling location	Khoja Mashhad					
Name of the water source	Spring water					
Date and time of sampling						
Indicators	unit of measurement	Analysis results	Norms of territorial permissible concentrations	Sanitary Rules and Norms (SNaR) 2.1.4.004.07		
General indicators						
Smell	Points	0	No more 2-3	// - //		
Smack	Points	0	No more 2-3	// - //		

Chromaticity	Degrees	5	Not more than 30	// - //
Turbidity	mg / l		No more than 2	// - //
Ammonia	mg / l	absent	-	
Subsidence	mg / l		-	// - //
Nitrates (NO ₃)	mg / l	0.55	Not more than 45	// - //
Nitrite	mg / l	0.00	Not more than 3	// - //
Hydrogen exponent	units PH	7.1	Within 6-9	// - //
Total mineralization (dry residue)	mg / l	280	1000 (1500) g	// - //
Hardness General	mol / L	7.6	7.0 (10.0) g	// - //
Chlorine residues	mg / l		0.3-0.5	// - //
Hydro carbonates	mg / l	244.08	1000	// - //
Alkalinity	mg / l	4.0	-	// - //
Phenolic index	mg / l		0.25	// - //
Inorganic substances				
Aluminum (Al + 3)	mg / l		0.5	// - //
Calcium	mg / l	23,7	30 \ 140	// - //
Barium (Ba + 2)	mg / l		0.1	// - //
Beryllium (Be + 2)	mg / l		0.0002	// - //
Boron (B, total)	mg / l		0.5	// - //
Iron (Fe, total)	mg / l		0.3 (1.0) 2	// - //
Cadmium (Cd, total)	mg / l		0.001	// - //
Manganese (Mn, total)	mg / l		0.1 (0.5) 2	// - //
Copper (Cu, total)	mg / l		1.0	// - //
Molybdenum (Mo, total)	mg / l		0.25	// - //
Arsenic (As, total)	mg / l		0.05	// - //
Nickel (Ni, total)	mg / l		0.1	// - //
Magnesium	mg / l	64.4	20 \ 85	// - //
Mercury (Hg, total)	mg / l		0.0005	// - //
Lead (Pb, total)	mg / l		0.03	// - //
Selenium (Se, total)	mg / l		0.01	// - //

Strontium (Sr + 2)	mg / l		7.0	// - //
Sulfates (SO4 -2)	mg / l	155	500	// - //
Fluorides (F)	mg / l			// - //
In high altitude conditions	mg / l		1.5	// - //
In mid-mountain conditions	mg / l		1,2	// - //
In the valley	mg / l		0.7	// - //
Chlorides (Cr -1)	mg / l	100	350	// - //
Chromium (Cr +6)	mg / l		0.05	// - //
Cyanide (SN)	mg / l		0.035	// - //
Zinc (Zn +2)	mg / l		5.0	// - //
Organic matter				
HCCH (lindane)	mg / l		0.002 3)	// - //
DDT (sum of isomers)	mg / l		0.002 3)	// - //
2.4 D	mg / l		0.03 3)	// - //
Full name of the artist	Narzulloev M.			
The conclusion of the sanitary doctor				
The study of a water sample for the study of physicochemical and organoleptic indicators complies with the requirements of SPN 2.1.4.004.07				
Full name and signature of the head of the communal hygiene department				
Alidzhaev H.				

Table 15. Test for aquatic microbiology

State Service for Sanitary and Epidemiological Supervision State Institution "Center for Sanitary and Epidemiological Expertise and Control of Transport and Borders"	Medical certificate form No. 210 approved by order of the Ministry of Health and Social Protection of the Republic of Tajikistan "03" October 2015 No. 840
Aquatic Microbiology Test	
06/23/2021	

Organization		Peshsaf			
Responsible person		Radjabov Ulugbek			
Sample location		R. Shaartuz, Madrasah "Khoji Mashhad"			
Date of sample receipt		23-06-2021			
Sample issue date		23-06-2021			
No.	Sample name	MUM	Coli index	Koli-titer	Intestinal Pathogens
66	Spring water	50	3	333	Not detected
Date of submission of the result		06/29/2021			
Doctor-bacteriologist		3.Yunusova			
Conclusion		The study of a water sample for the study of bacteriological indicators complies with the requirements of SPN 2.1.4.004.07			

Analysis of soil and water samples

PA "Peshsaf" conducted a study of soil and water samples in the study area. Samples were taken in strict accordance with the methodology of the laboratory of the State Service for Sanitary and Epidemiological Supervision of the State Institution Center for Sanitary and Epidemiological Expertise and Control of Transport and Borders (for water), as well as the Institute of Soil Science of the Academy of Sciences of the Republic of Tajikistan (for soil).

In soil sample No. 1 "44-chashma" was taken from a depth of 0-30 cm, the humus content is 1.17% of the average degree of soil supply, mineral nitrogen is 32.81 mg / kg of the low degree of soil supply; the amount of phosphorus in the average degree of soil provision is 40.0 mg / kg; the average potassium content was 263 mg / kg. The medium of exchangeable hydrogen ions in the soil (pH) is 7.8, which has a low alkalinity.

Soil sample No. 2 "44-chashma" was taken from a depth of 0-30 cm, the humus content is 1.24% of the average level of soil supply, mineral nitrogen is 46.53 mg / kg of the average level of soil fertility; the amount of phosphorus is 30.1 mg / kg of a low degree of soil supply; the amount of potassium is 256 mg / kg, the average degree of soil supply. The medium of exchangeable hydrogen ions in the soil (pH) 7.5, has a low alkalinity.

Soil sample No. 3 "44-chashma" was taken from a depth of 0-30 cm, the humus content is 1.26% of the average level of soil fertility, mineral nitrogen is 34.95 mg / kg of a low degree of soil supply; phosphorus content 35.2 mg / kg average degree of soil supply; the amount of potassium is 264 mg / kg of the average degree of soil supply. The environment of exchangeable soil hydrogen ions (pH) in the soil was 7.6, which is low alkalinity.

Soil sample No. 4 "44-chashma" was taken from a depth of 0-30 cm, the humus content is 1.22% of the average degree of soil supply, mineral nitrogen is 20.25 mg / kg of the low degree of soil supply; phosphorus content 29.3 mg / kg of low soil supply; the amount of potassium is 256 mg / kg of the average degree of soil supply. The medium of exchangeable hydrogen ions in the soil (pH) 7.5, has a low alkalinity.

The result of an agrochemical analysis of soil samples from the Nosiri Khusrav region, found that the soils have a low and medium content of mineral substances. It is recommended to use mineral and organic fertilizers for soil samples with low nutrient content with the following criteria:

- Before carrying out autumn plowing in soil samples with a low humus content, apply organic fertilizers at the rate of 15-20 t / ha.
- Nitrogen-phosphorus mineral fertilizer - P100x2.2. = 220 kg / ha.
- Potassium chloride mineral fertilizer - K 100x1.8 = 180 kg / ha.
- Nitrate fertilizer - N120x2.9 = 348 kg / ha.

Table 18. Results of analysis of soil samples to determine the amount of humus, pH and nutrients.

No.	Sampling location	Depth cm	Humus,%	NS	mg / kg				
					NN03	NN ^ 4	NN03	R 2 O 5	K 2 O
	Nosiri Khusrav, Khatlon						+ NN ^ 4		
1	Sample 1 44-Chashma	0-30	1.17	7.8	39.1	30.8	32.81	40.0	263
2	Sample 2 44- Chashma	0-30	1.24	7.5	22.4	53.2	46.53,	30.1	256
3	Sample 3 44- Chashma	0-30	1.26	7.6	16.7	40.0	34.95	35.2	264
4	Sample 4 44- Chashma	0-30	1.22	7.5	2.7	25.2	20.25	29.3	256

Water analyzes at the site showed, in general, the suitability of water use for drinking needs. Below is the analysis.

Table 19. Results of the drinking water test

					Person form code _____	
					Facility code by RUKT _____	
Ministry of Health and Social Protection of the Republic of Tajikistan				Medical certificate form No. 167 approved by order of the Ministry of Health and Social Protection of the Republic of Tajikistan "03" October 2015 No. 840		
Main Department of State Sanitary and Epidemiological Surveillance						
Protocol No. 34						
Drinking water research						
June 24, 2021						

Sampling location	Chilu chor chasma			
Name of the water source	Spring water			
Date and time of sampling				
Indicators	unit of measurement	Analysis results	Norms of territorial permissible concentrations	Sanitary Rules and Norms (SNaR) 2.1.4.004.07
General indicators				
Smell	Points	0	No more 2-3	// - //
Smack	Points	0	No more 2-3	// - //
Chromaticity	Degrees	5	Not more than 30	// - //
Turbidity	mg / l		No more than 2	// - //
Ammonia	mg / l	absent	-	
Subsidence	mg / l		-	// - //
Nitrates (NO ₃)	mg / l	0.26	Not more than 45	// - //
Nitrite	mg / l	0.00	Not more than 3	// - //
Hydrogen exponent	units PH	7.0	Within 6-9	// - //
Total mineralization (dry residue)	mg / l	260	1000 (1500) g	// - //
Hardness General	mol / L	7.1	7.0 (10.0) g	// - //
Chlorine residues	mg / l		0.3-0.5	// - //
Hydrocarbonates	mg / l	122.04	1000	// - //
Alkalinity	mg / l	2.0	-	// - //
Phenolic index	mg / l		0.25	// - //
Inorganic substances				
Aluminum (Al + 3)	mg / l		0.5	// - //
Calcium	mg / l	19	30 \ 140	// - //
Barium (Ba + 2)	mg / l		0.1	// - //
Beryllium (Be + 2)	mg / l		0.0002	// - //
Boron (B, total)	mg / l		0.5	// - //
Iron (Fe, total)	mg / l		0.3 (1.0) 2	// - //

Cadmium (Cd, total)	mg / l		0.001	// - //
Manganese (Mn, total)	mg / l		0.1 (0.5) 2	// - //
Copper (Cu, total)	mg / l		1.0	// - //
Molybdenum (Mo, total)	mg / l		0.25	// - //
Arsenic (As, total)	mg / l		0.05	// - //
Nickel (Ni, total)	mg / l		0.1	// - //
Magnesium	mg / l	63.2	20 \ 85	// - //
Mercury (Hg, total)	mg / l		0.0005	// - //
Lead (Pb, total)	mg / l		0.03	// - //
Selenium (Se, total)	mg / l		0.01	// - //
Strontium (Sr + 2)	mg / l		7.0	// - //
Sulfates (SO4 -2)	mg / l	85	500	// - //
Fluorides (F)	mg / l			// - //
In high altitude conditions	mg / l		1.5	// - //
In mid-mountain conditions	mg / l		1,2	// - //
In the valley	mg / l		0.7	// - //
Chlorides (Cr -1)	mg / l	60	350	// - //
Chromium (Cr +6)	mg / l		0.05	// - //
Cyanide (SN)	mg / l		0.035	// - //
Zinc (Zn +2)	mg / l		5.0	// - //
Organic matter				
HCCH (lindane)	mg / l		0.002 3)	// - //
DDT (sum of isomers)	mg / l		0.002 3)	// - //
2.4 D	mg / l		0.03 3)	// - //
Full name of the artist	Narzulloev M.			
The conclusion of the sanitary doctor				
			The study of a water sample for the study of physicochemical and organoleptic indicators complies with the requirements of SPN 2.1.4.004.07	

Full name and signature of the head of the communal hygiene department	Alidzhaev H.
--	--------------

Table 20. Results of the microbiology test 44 Chashma

State Service for Sanitary and Epidemiological Supervision State Institution "Center for Sanitary and Epidemiological Expertise and Control of Transport and Borders"		Medical certificate form No. 210 approved by order of the Ministry of Health and Social Protection of the Republic of Tajikistan "03" October 2015 No. 840			
Aquatic Microbiology Test					
06/23/2021					
Organization		Peshsaf			
Responsible person		Radjabov Ulugbek			
Sample location		44 Chashma, Nosiri Khusraw			
Date of sample receipt		23-06-2021			
Sample issue date		23-06-2021			
No.	Sample name	MUM	Coli index	Koli-titer	Intestinal Pathogens
65	Spring water	50	3	333	Not detected
Date of submission of the result		06/29/2021			
Doctor-bacteriologist		3.Yunusova			
Conclusion		The study of a water sample for the study of bacteriological indicators complies with the requirements of SPN 2.1.4.004.07			