



REPUBLIC OF TAJIKISTAN: ROGUN HPP PROJECT

OBISHUR TEMPORARY SEDIMENT CONTROL BARRIERS

INITIAL ENVIRONMENTAL EXAMINATION



APRIL 17, 2026

OPEN JOINT STOCK COMPANY "ROGUN HPP"
Dushanbe, Tajikistan

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Acronyms and Abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
EIB	European Investment Bank
ER	Employer's Representative
E&S	Environmental and social
ESHS	Environment, social, health and safety
EU	European Union
GoT	Government of Tajikistan
GRM	Grievance Redress Mechanism
H&S	Health and Safety
HSMP	Health and Safety Management Plan
IEE	Initial Environmental Examination
OJSC	Open Joint Stock Company
PMG	Project Management Group for Energy Facilities Construction Under the President of the Republic of Tajikistan
WB	World Bank

1. Introduction

The Rogun Hydropower Project (HPP) is being constructed by OJSC Rogun HPP on the Vakhsh River about 110 kilometers east of Dushanbe. Immediately downstream of the Rogun dam, which is partly constructed, the Obishur River tributary enters the Vakhsh on the left bank. The geology of the Obi Shur valley has led to the accumulation of large amounts of rocky debris and mud in the valley, which is subject to movement during flood events. Due to the location where the Obishur empties into the Vakhsh River, such flows of debris and mud have the potential to damage the outlet portals and other structures of Rogun HPP, and to threaten ongoing construction of the plunge pool.

To reduce the potential of damage, a check dam has been constructed in the Obishur valley about one kilometer upstream of the confluence with the Vakhsh (**Error! Reference source not found.**). Heavy rains in the spring of 2024 led to flooding and debris flows that damaged this check dam and the Rogun HPP powerhouse. The powerhouse was put back into operation within weeks and the dam repaired and raised in 2025. However, to further reduce the potential for future events that could threaten Rogun HPP's infrastructure, additional check dams (also known as Temporary Sediment Control Barriers) will be constructed upstream of the existing check dam in order to intercept and slow the movement of rocks and mud and prevent future damage and overtopping of the existing check dam.

Construction of Rogun HPP is being partly financed by the World Bank and all projects receiving financing from the World Bank are subject to the Bank's Environmental and Social Framework and the associated Environmental and Social Standards (ESSs). ESS1 (*Assessment and Management of Environmental and Social Impacts*) requires an assessment of the environmental and social impacts of projects that is proportionate to the risks and impacts, and that identifies measures to avoid or reduce the impacts to acceptable levels. An Environmental and Social Assessment of the Rogun HPP project was prepared by WSP UK and disclosed by the World Bank and by the Project Management Group for Energy Facilities Construction Under the President of the Republic of Tajikistan in late 2025.

To meet the requirements of ESS1, OJSC Rogun prepared an Initial Environmental Examination (IEE) that assesses the potential impacts of construction of the new Temporary Sediment Control Barriers (check dams) and identifies measures to avoid or mitigate those impacts.

2. Applicable Standards

The project will be subject to the international agreements to which Tajikistan is a party, the E&S standards of the co-financing international financial institutions, and Tajik national legislation and regulations.

2.1. National Standards

Table 1 identifies Tajikistan laws that are relevant to the E&S performance and summarizes their objectives and their relevance to the project.

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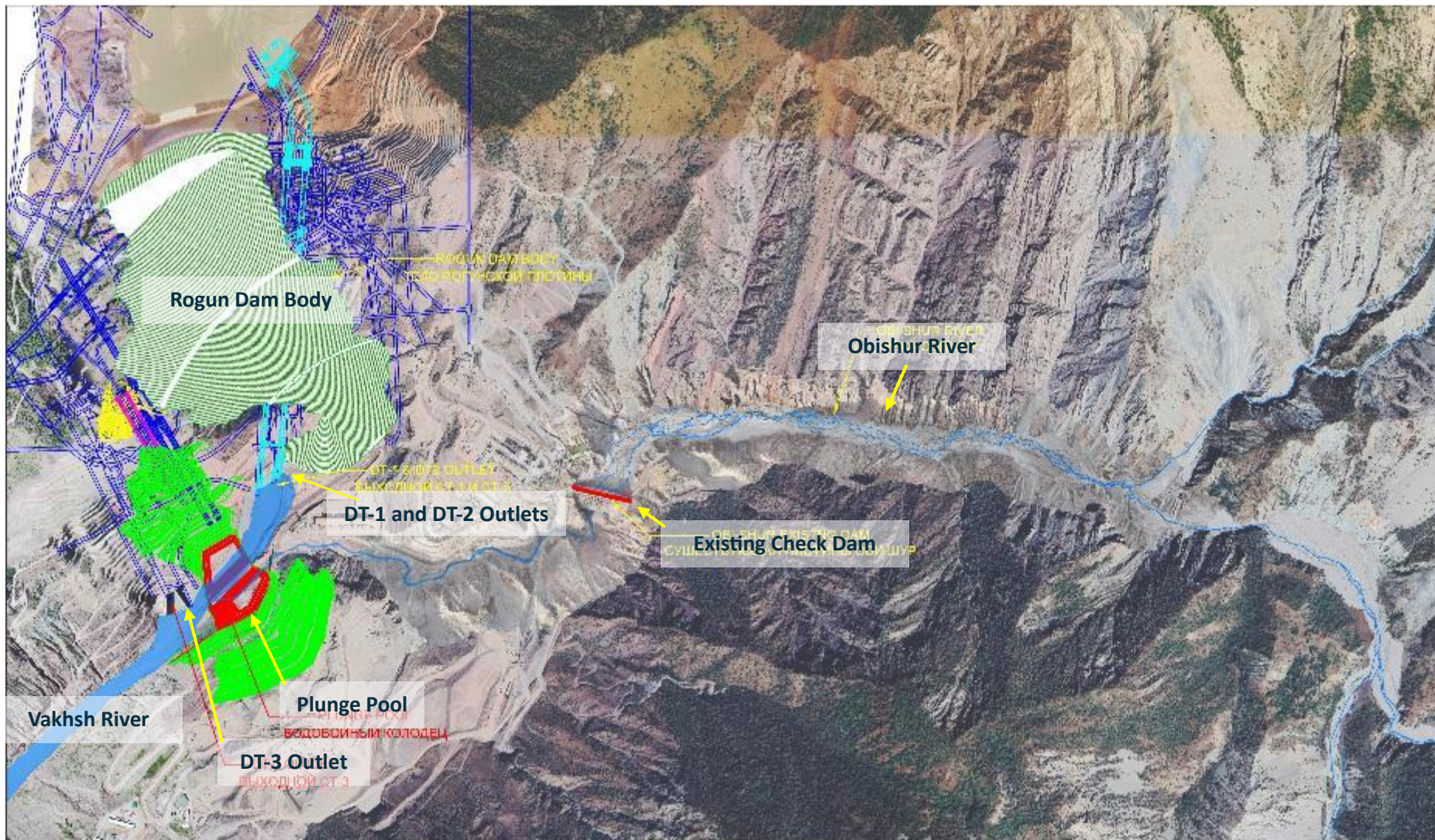


Figure 1. General Layout of Obishur Check Dam and Rogun HPP Downstream Structures

Table 1. Tajikistan Laws on Environmental and Social Protection

<i>Legislation</i>	<i>Objective</i>	<i>Relevance to Project</i>
The Constitution of the Republic of Tajikistan(1994, as amended in 2003)	Guarantees citizens’ rights and recognizes the importance of environmental and social protection, including Right to Health (Article 39), Environmental Protection (Article 43), Anti-discrimination (Article 14), Safeguarding Nature (Article 22), Freedom to Associate (Article 32), and Right to Petition (Article 37).	Safeguards rights of citizen’s working on or affected by the Project.
The Law on Environment Protection (21 July 2011, № 208)	Stipulates that Tajikistan's environmental policy should give priority to environmental actions based on scientifically proven principles, to combine economic and other activities that have an impact on the environment with nature preservation and the sustainable use of resources. Defines the applicable legal principles, the protected objects, the competencies and roles of the Government, the Committee for Environmental Protection, local authorities, public organizations, and individuals. The Law also stipulates measures to secure public and individual rights to a safe and healthy environment and requires a combined system of ecological expertise and environmental impact assessment of any decision on an activity that could have a negative impact on the environment.	Governs the protection of natural resources that may be affected by the project.
The Law on Ecological Expertise (16 April 2012, № 818)	Principles and procedure for conducting environmental assessment and is directed at the prevention of harmful effects of implementation of the planned activity on the environment and related social and economic conditions.	Sets out the need for independent environmental expertise in undertaking assessments under Tajik law. This project does not require CEP review and approval
Law of the Republic of Tajikistan on Environmental Impact Assessment (18 July 2017, № 1448)	General provisions for EIA, including the principles of evaluation of the impact on the environment; the competencies and powers of state authorities; the procedure for conducting the EIA, including the mandatory requirements and phases of the process. It also defines the roles, rights, and duties of public associations in the EIA and the rights of citizens for access to information on the EIA.	CEP has confirmed no assessment is needed for this project. This IEE has been prepared as if it were required and to meet World Bank requirements.
Law of the Republic of Tajikistan on Environmental Monitoring (March 25, 2011)	This Law determines the organizational, legal, economic and social basis for ensuring environmental monitoring.	Governs the requirements around monitoring of potential project environmental and social effects.

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<i>Legislation</i>	<i>Objective</i>	<i>Relevance to Project</i>
Law of the Republic of Tajikistan on Environmental Audit (December 26, 2011)	This Law determines the principles and procedures for carrying out environmental audits.	Governs the requirements around project reporting and audits during the construction
Law of the Republic of Tajikistan on Fauna (January 5, 2008) (as amended of the Law of the Republic of Tajikistan on 24.12.2022, No. 1937)	General principles for the protection, recovery, and reasonable use of fauna. It establishes the legal, economic, and social basis of industry with a primary focus on the protection and recovery of fauna resources.	Would require protection of fauna if any could be affected
Law of the Republic of Tajikistan on Protection and Using of Flora (2004, amended in 2008)	This Law defines principles of the state policy in the field of protection and rational use of flora, determines the legal, economic, and social basis in this area, and is directed at preserving and reproducing of flora resources.	Would require measures to protect valuable flora if any could be affected
Forest Code of the Republic of Tajikistan (2011)	Regulates forestry and is directed at creating use of forests, their safekeeping and protection, conservation and improvement of the natural environment, and protection of timber and agricultural products.	Would require protection of forests if any could be affected
Law of the Republic of Tajikistan on Air Protection (2012)	Defines the economic mechanism for air protection, including its objectives, sources of financing for air protection measures and payments for air pollution (within and beyond established limits).	Protection of the workforce on site from adverse air quality during construction, as well as nearby communities.
Law of the Republic of Tajikistan on Soil Protection (October 16, 2009)	Determines the basic principles of state policy, the legal basis of activities of public authorities, natural persons and legal entities for the purpose of rational and careful use of soils, preserving quality, fertility and protection of soils against negative phenomena, and governs the complex of relations connected with the protection of soils.	Governs the requirements around preservation of soils where practicable during stripping and stockpiling and reuse, if any soil could be affected
Law of the Republic of Tajikistan On Production and Consumption Waste (2005, last amended in 2011)	Establishes the principles for the collection, storage, use, transportation, neutralization, and disposal of waste materials.	Sanitary wastes will need to be managed in a way that meets requirements of this law
The Water Code (2000, last amended 2012)	Establishes policies on water management, permitting, dispute resolution, usage planning and cadaster. It promotes rational use and protection of water resources exercised by all beneficiaries and defines the type of water use rights, authority and roles of regional and local governments for water	If water is required, its extraction and use would need to comply with the law

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<i>Legislation</i>	<i>Objective</i>	<i>Relevance to Project</i>
	allocations among various users, collection of fees, water use planning, water use rights and dispute resolution.	
Law of the Republic of Tajikistan on the drinking water and drinking water supply (December 29, 2010)	Establishes legal, organizational, economic and social basis of potable water provision. The state guarantees the provisions of drinking water, water disposal, and drinking water quality and safety.	Safeguards workers regarding the provision of safe drinking water and sanitary waste removal.
Code of Health Care of the Republic of Tajikistan of May 30, 2017. No. 1413 (as amended by the Law of the Republic of Tajikistan of 29.01.2021 No. 1762)	This Code governs the public relations regarding healthcare and is aimed at the implementation of constitutional rights of citizens and health protection.	Safeguards the rights of workers to healthcare
Law on Environmental Information (2011)	Defines the legal, organizational, economic and social rationale for providing environmental information and establishes the right of individuals and legal entities to receive complete, reliable, and timely environmental information. Article 4 provides the right of access to environmental information and Article 8 defines the conditions for restricting access to environmental information.	Would not require disclosure or dissemination of information on the project
The Labor Code (2016)	Establishes requirements for employers and employees, including nondiscrimination, minimum age of employment, employer-employee relationship, voluntary employment, minimum wages, leave, overtime and has provisions for pregnant women and caregivers for children, and settlement of disputes between workers and employers. Establishes comprehensive OHS requirements	Safeguards the rights of workers, women and children. Incorporated into the Project labor management practices.

2.2. International Obligations

The primary international obligations that will apply to the Project are international conventions of the International Labor Organization, which have been incorporated into Tajikistan law. These include the following:

- Forced Labor (C029) and Abolition of Forced Labor (C105)
- Minimum Age (C138) and Worst Forms of Child Labor (C182)
- Discrimination (C111)

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- Freedom of Association and the Right to Organize (C087)
- Right to Organize and Collective Bargaining (C098)
- Equal Remuneration (C100)

The requirements of these conventions have been incorporated into the Labor Code's regulatory regime and in turn are included in the Rogun Labor Management Procedures.

2.3. International Standards

The standards of the various international financial institutions that are providing or are expected to provide financing to Rogun HPP will apply to the project. These include at least the following:

- World Bank: Environmental and Social Framework (2018) and the Environmental and Social Standards (ESSs), which apply to borrowers. Relevant Good International Industry Practice includes World Bank Group General Environmental, Health, and Safety (EHS) Guidelines and the EHS Guidelines for Construction Materials Extraction. The ESSs are described in detail in the Environmental and Social Impact Assessment for Rogun HPP
- European Investment Bank: Environmental and Social Framework (ESSF), consisting of the E&S policy (2022) and revised E&S standards (2022); and the EIB Environmental, Climate, and Social Guidelines on Hydropower Development (2019)
- Asian Development Bank (ADB): Safeguard Policy Statement (2009) and associated safeguard documents
- Asian Infrastructure Investment Bank (AIIB): Environmental and Social Framework (2019, 2021, 2022, and 2024)
- Standards of other Lenders, including the Islamic Development Bank, the Eurasian Development Bank; the Saudi Fund for Development (SFD), and the Kuwait Fund for Arab Economic Development.

2.4. Permits and Authorizations

The Committee for Environmental Protection has confirmed that no permits or formal authorizations will be required.

3. Project Description and Baseline Conditions

The confluence of the Obihingou and Surkhob rivers forms the Vakhsh River, which flows from North-East to South-West, separating the Karategin Range from the Vakhsh Range. The average annual water discharge in the Vakhsh River over many years is about 870 m³/sec, with a minimum discharge of 139 m³/sec in February and a maximum discharge of 1,760 m³/sec in July and August. The main large lateral tributaries of the Vakhsh River within the future reservoir are the Mudzhikharv, Hakimi, Obigarm, and Daraikumok rivers.

The main river supply begins with the onset of warm weather, usually in April. The peak flooding in the rivers in the lower mountain belt begins in May, when the main snowmelt and heavy rainfall occur. A second flood peak occurs in July and August, caused by the melting of snow and ice in the upper mountain belt. The flood subsides more gradually than its rise and continues until October. Then the low water period begins, lasting six months. During this period, the rivers are fed by groundwater

drainage. The intensity of loose sediment washout in the Vakhsh River basin reaches 2900 t/km²; the average turbidity is more than 4000 g/m³.

The Upper Vakhsh Valley has a bead-like structure, characterized by alternating narrow and widened sections. The transitions between sections are usually abrupt. The narrowed sections of the valley, separating the "beads," typically have a V-shape in cross-section. The river valley within these sections is universally incised into the bedrock and is characterized by poorly developed terraces. If terraces are present, they are very narrow (no more than a few tens of meters) and short in length. The widened sections of the valley are characterized by a fairly well-developed V-shape in cross-section with extensive terrace development. In some places, the width of the "beads" reaches 3.5-4 km.

Mudflows are quite common in the project area, and their risks were studied beginning with the technical design, when construction of a protective structure on the Obishur stream was considered. Severe floods have been recorded along this left-bank tributary, some of which have resulted in temporarily blocking the Vakhsh River. Most mudflows occur during rainy seasons in May and June. Between 1971 and 1991, they occurred at least once a year. Maximum volumes are estimated at approximately 3,100 million m³ in 1983 and 1,185 million m³ in 1992. Mudflows are fed by liquid, consisting of snow-glacial and mixed sediments. The main sources of solid mudflow runoff are weathered crust and ancient landslide massifs. Other processes include avalanches, solifluction, and slope erosion.

The Obishur River discharges into the Vakhsh River from the left bank immediately downstream of the Rogun Dam, near the outlet portals of the Rogun turbine hall and nearly directly into what will become the plunge pool for the main outlets (see Figure 1). Some sections of the upper tributaries of the Obishur are characterized by more gentle, partly forested slopes, with the streambeds/floodplains containing loose sediments and gravel (**Error! Reference source not found.**). In the middle reach (approximately 7 km), the river valley turns almost at a right angle, and the gentle slopes are covered by alluvial deposits. The valley in the lower reach (approximately 5.5 kilometers) and below the dam is narrow valley with steep, nearly vertical slopes consisting of alluvial deposits and frequent slope failures. In total, the Obishur river includes 13 permanent and intermittent tributaries, each contributing to the formation of debris flows in the main channel. The total volume of potentially transportable sediments in the basin is estimated

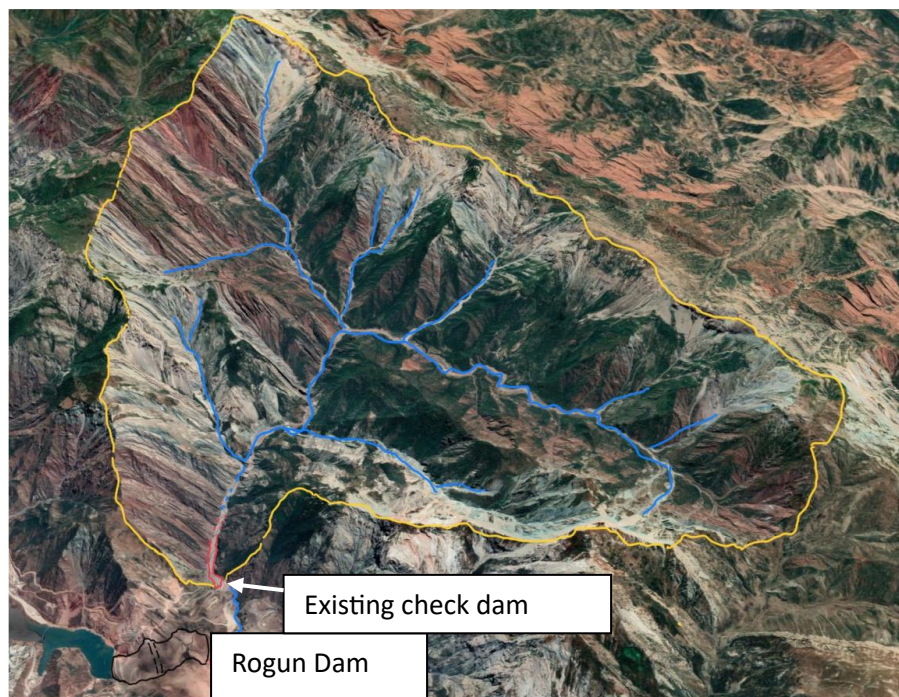


Figure 2. Obishur Watershed (yellow outline) and Drainage Network

Source: Obi Shur Dam Damage and Its Potential Consequences on Lot 2. Letter to Employer's Representative dated June 24, 2024.

at 60–65 million cubic meters.

The Obishur is dry much of the year but is subject to flash flooding and major debris flows in periods of heavy rain. Between 2010 and 2015, in order to protect these structures from these debris and mud flows, a check dam was constructed on the Obishur about one kilometer upstream of the confluence with the Vakhsh (Figure 3). The dam was 60 meters high and contained 253,720 cubic meters of concrete.



Figure 3. Construction of Existing Check Dam (2010-2015)

Following the flooding and mudflow in 2024, the dam was raised an additional 10 meters in 2025, to 1,125 meters above sea level, the openings that allow passage of debris were modified to reduce damage to the structure, and much of the collected debris and sediment was removed. The total storage capacity upstream of this dam is now 390,000 cubic meters. The structure is shown in Figure 4.



Figure 4. Upstream Face of Existing Check Dam (2026)

Immediately upstream of the existing check dam, the Obishur valley is characterized by steep slopes, deep valleys, and high-volume debris flows generated by slope failures, and landslides. Examples of the mass wasting that has occurred in some locations are shown on Figure 5. At the foot of the slopes, large and small rocks form screes. The slopes are primarily ash-gray in color, but in some places,



Figure 5. Examples of Mass Wasting from Valley Walls

reddish-brown patches of rock are visible, standing out from the predominant color. Even where there is some vegetation, the slope surface is uneven and crumbling in places, with exposed rocky material. A narrow vertical gully (ravine) runs through the central part of the valley, formed by water runoff and erosion through the surface of the colluvial deposits. Smaller rocks, clay, and sedimentary rocks have flowed down and collected in this channel to some unknown depth.

The upper part of most slopes are sparsely vegetated, consisting of small shrubs and trees and limited grass in some locations (Figure 6). The stream channels in the mainstem and the tributaries are dry for much of the year, and surface flows occur only following rainfall and snowmelt events. Downstream flow during those periods would generally be through the alluvium/colluvium and not on the surface. Downstream of the headwater tributaries, surface flows would occur only after extended periods of rain or larger storms. Heavy rains, in particular when combined with snowmelt in spring can cause flash floods that mobilize the debris, in particular the fine material, and this can lead to downstream mudflows that (as noted) damaged the existing check dam in 2024.

Terrestrial biodiversity is extremely limited in the valley. Although no surveys have been completed, it is considered very unlikely that terrestrial or aquatic species of conservation concern would be present, even occasionally, due to the lack of suitable habitat and this has been confirmed by the Committee for Environmental Protection. The floor of the valley is essentially barren rocky colluvium. When there is flowing water on the surface, as there was from recent rains and snowmelt at the time of the photograph, it flows through a narrow channel that runs down the valley, as shown on Figure 7 and Figure 8.



Figure 6. Slopes Are Sparsely Vegetated

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Air quality in the valley is generally good, with the only source being dust generated by Rogun HPP construction a few kilometers away. There are no sources of contaminants that could affect water quality other than the fine material that is entrained when water flows over the eroded colluvium, which could be expected to cause extremely high turbidity.



Figure 7. Colluvial Deposits Cover the Valley Floor

To prevent a recurrence of the 2024 event that damaged the existing check dam and threatened elements of the Rogun HPP, OJSC will upgrade the existing check dam and construct four new check dams upstream of the existing dam. These new dams will not be permanent structures, but are intended to last about two years, until permanent structures can be designed and constructed. The purpose of the four new debris retention dams is intended to bring additional protection of the on-going plunge pool works on the Vakhsh river by:

- Providing storage capacity of 510,000 cubic meters for debris and sediments
- Reducing the overall erosion process of the riverbed by decreasing the flow velocity, by creating a “stepped” shape of the riverbed and enlarging the riverbed.



Figure 8. Obishur Valley Upstream of Existing Check

The Contractor is not expected to hire additional workers to perform the work but will continue to employ workers who completed the improvements to the existing check dam in 2025 and who are employed for Rogun HPP construction activities. A total of about 80 workers have been assigned to the Obishur project, which is 25-30 percent complete (as of early April 2026) and expected to be completed by May 2026.

Improvement of the existing check involves the installation of additional mudflow protection structures on the upstream face of the dam, as shown on Figure 9. These are intended to prevent larger material from passing through and damaging the downstream face of the dam.

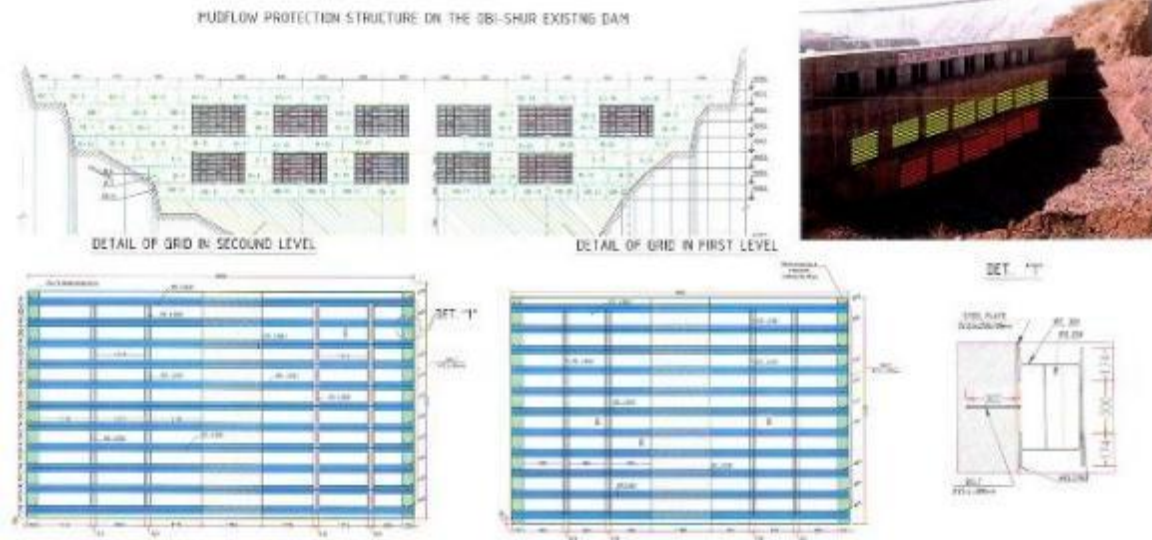


Figure 11. Upgrade of Existing Obishur Check Dam

The locations of the existing and proposed new check dams are shown on Figure 10. As shown, the new barriers are numbered from upstream (#1, farthest from the existing check dam) to downstream (#4, nearest). To construct each check dam, a foundation of pre-poured concrete slabs, each about two meters square by 0.5 meters thick, will be laid across the valley floor, and rock-filled gabions will be piled to heights of 10 or 14 meters on the downstream face. The conceptual design is shown in Figure 11 and the dam heights are shown in

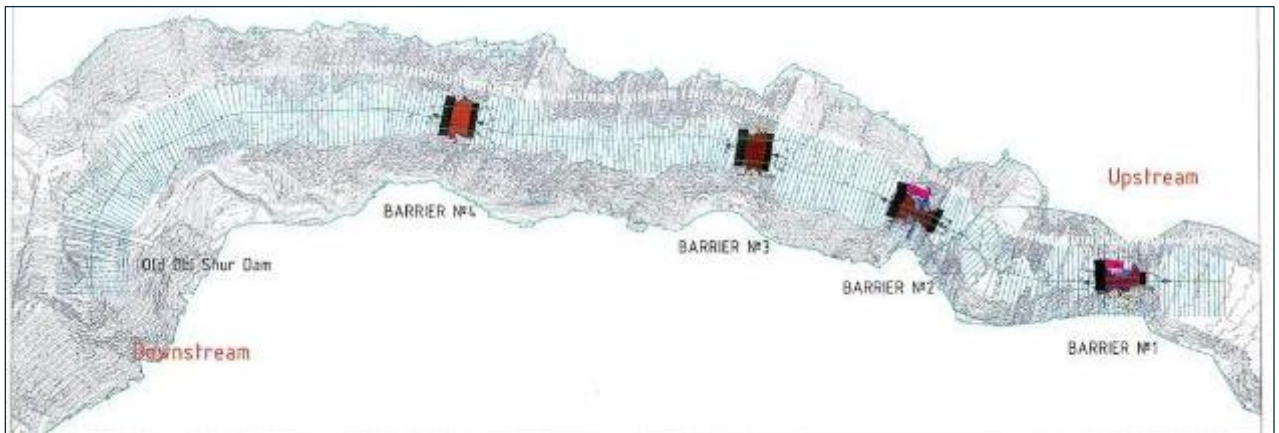


Figure 10. Locations of Four Proposed New Check Dams

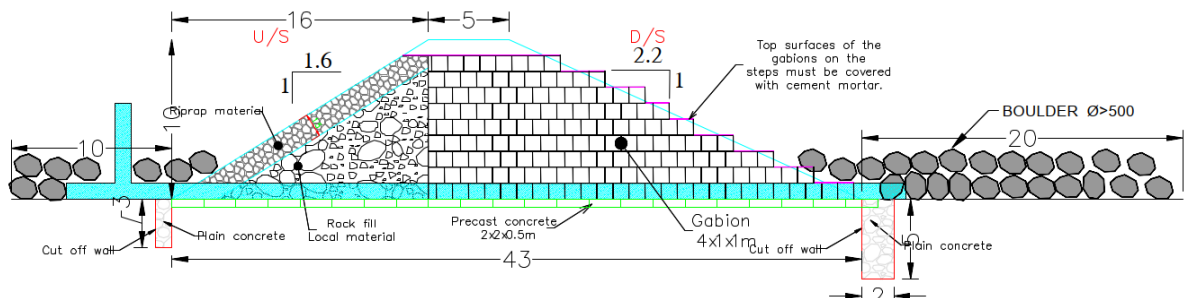


Figure 9. Conceptual Design of New Check Dam

Table 2.

Table 2. Dimensions of New Check Dams

No.	Barrier width (m)	Barrier height (m)	Distance upstream from existing dam (km)
1	58	14	2.1
2	58	14	1.7
3	43	10	1.4
4	43	10	0.7

The sediment retention dams will be pervious structures retain the coarse solid phase of the inflow / debris-flow. They will not be watertight, and by progressively retaining a large part of the solid phase, they will also reduce the riverbed slope and enlarge the riverbed, which will mitigate the erosion process during low to moderate flood events. They will be equipped with water-discharging structures that will allow such low to moderate floods to pass without overtopping the dam crest—although they will ultimately be blocked with sediment, this will not occur immediately. The central bodies of the structures will be made with gabions. Four meters of riprap will protect the seven-meter-wide crest and the 2.2H/1V downstream slope and 1.5 meters of riprap material will cover the 2H/1V upstream slope. The rockfill material will be random rockfill extracted from the Obishur riverbed. The sandy fraction will be 10 percent (4.75 millimeters). The rockfill material will be placed in 0.75 to 1m layers and compacted with a 12 tons vibratory roller.

Figure 12, Figure 13, Figure 14, and **Error! Reference source not found.** show details of check dams 1 through 4, respectively. They are being equipped either with a water discharging structure installed on one abutment (a waterway channel) or with a central overtopping section. The dams are designed to be able to discharge the 10 years hydraulic flood, i.e. about 100 m³/s of water.

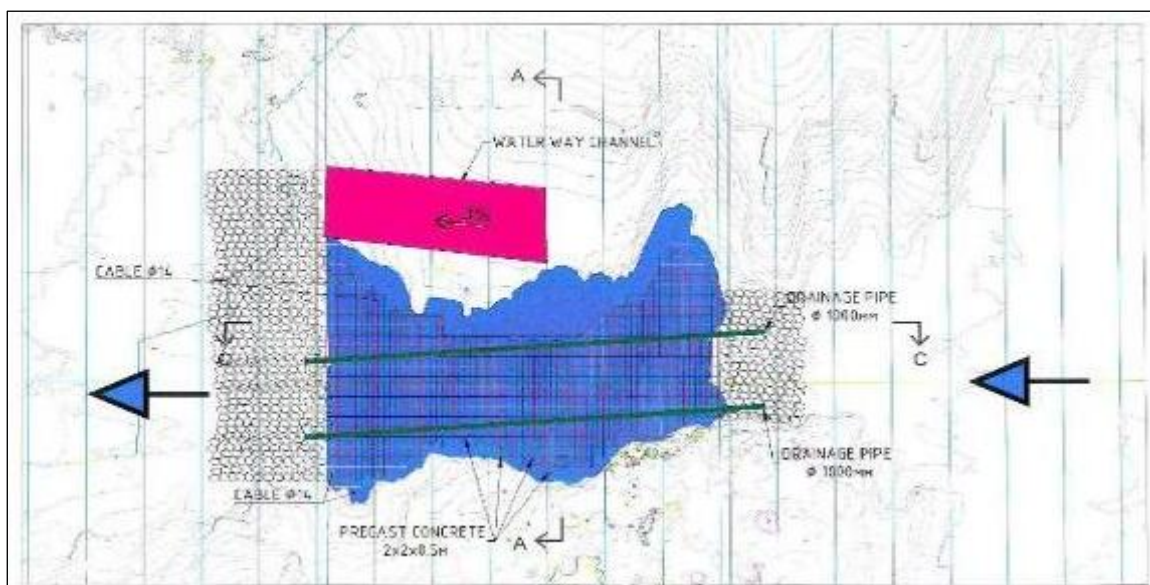


Figure 12. Sediment Control Barrier 1

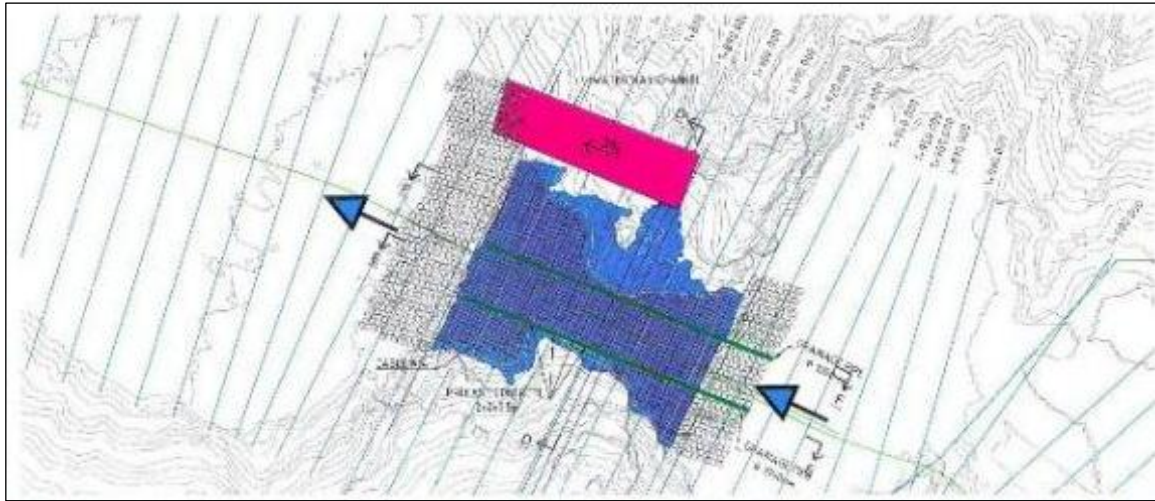


Figure 13. Sediment Control Barrier 2

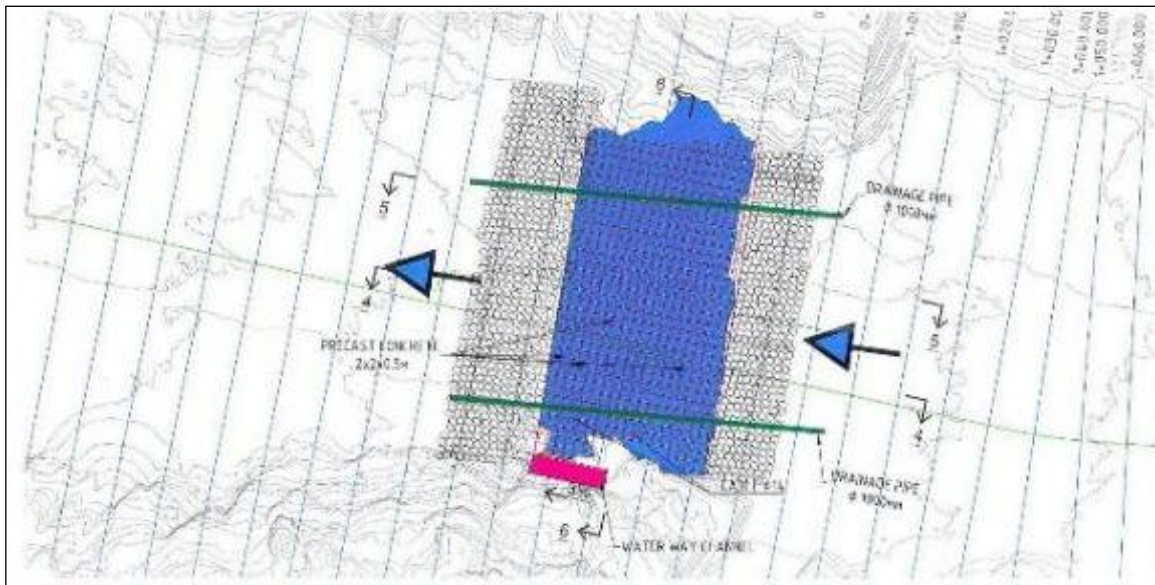


Figure 14. Sediment Control Barrier 3

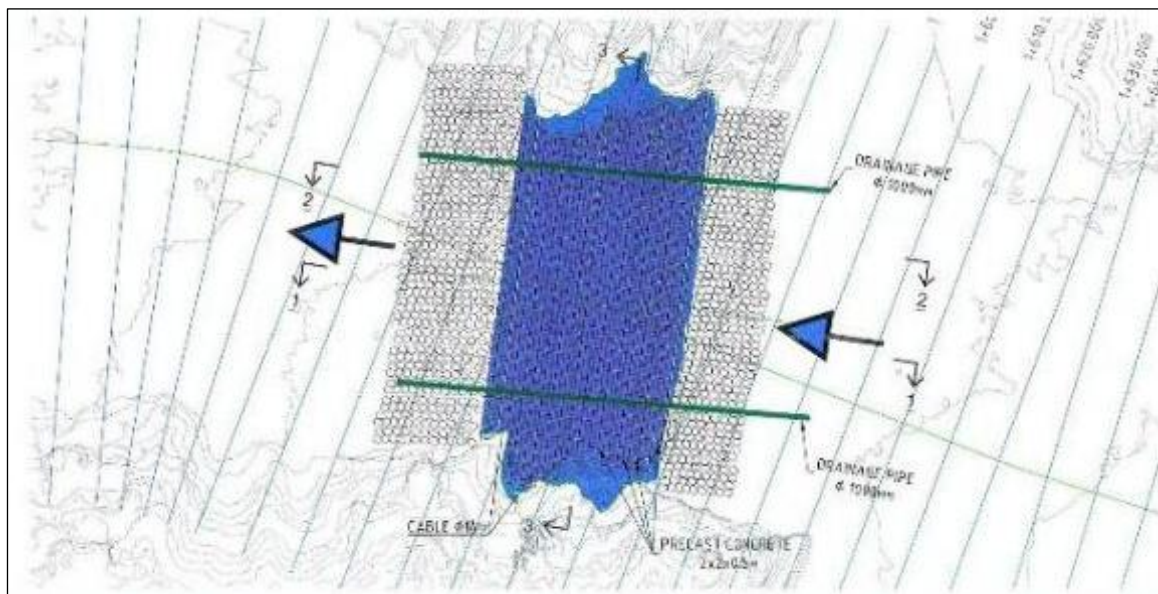


Figure 15. Sediment Control Barrier 4

4. Potential Environmental and Social Impacts and Required Mitigation Measures

Construction of the check dams could result in potential risks and impacts to people and the environment. In general, these are considered to be relatively minor, with the most significant being risks to workers.

Air Quality. Vehicles and equipment will generate emissions of dust and air pollutants, but these will be very minor and have a negligible effect on air quality. During dry periods, the movement of trucks and mobile equipment will generate dust, possibly in relatively large quantities, as will excavation of material from the valley floor. Because the work is being completed in the spring, when rainfall is common, this is less likely than if done in summer. Regardless, if project managers or ESHS personnel observe visible dust, they will require the Contractor to mobilize a bowser and apply water to the roads and/or other areas where dust is a concern. Potential impacts would be minor at most.

Water Quality. As noted, surface water, which flows only after precipitation events and snowmelt, is extremely turbid. Any additional turbidity that results from project disturbance of surface materials would not be expected to result in significant impacts. The only potential impact on water quality that could be caused by the project would be from spills of diesel if refueling operations take place in the valley. The Contractor will prohibit any such refueling operations.

Hydrology. In general, the project will not affect the flow of the Obishur except to slow the movement of floodwaters and to intercept some amount of the fine and coarse sediment carried by the water. This will have a negligible effect on the Vakhsh River. As noted, the temporary check dams are designed to withstand a water flow of about 100 cubic meters per second (m^3/sec), which is estimated to be exceeded about every 10 years (that is, a 10-year flood event). Debris flow during such an event has been estimated to be about $663 m^3/s$ for an event that lasted 2.5 hours. more severe event could cause successive failure of the check dams and ultimately failure of the existing dam. If each of the dams held the maximum amount of water at the time of failure, total of about $510,000m^3/s$ would be released.

In developing the conceptual and final designs of the four temporary check dams, the ER conducted an analysis of the risk of failure of the four new debris retention dams for an overtopping equal to 0.75 m over the crest, which would cause failure of the cascade of new dams and the release of sediment (other risks, such as occurrence of a strong earthquake, were not analyzed)¹¹. The analysis considered three scenarios under which the four new check dams would fail in succession from upstream to downstream) following the occurrence of a hydraulic event with a return interval greater than 10 years. The analysis reached the following conclusions for the three scenarios:

- All new check dams full of debris: If the dams failed, the released volume of stored debris was calculated to be $337,086m^3$, which is slightly less than the $390,000m^3$ capacity of the existing check dam. “Thus, the occurrence of a 10-years debris-flow flood would not create incremental damages on the existing dam.”
- All new check dams empty. If the dams failed in succession, it was estimated that about $29,000 m^3$ of debris would be released by the existing dam, which would not be overtopped.

¹¹ Tractebel Engie. Rogun HPP, Obishur Sediment Retention Dams – Design Concept. March 16, 2026.

- All new check dams full of water. "...the discharge capacity of the [existing] Obishur check dam is far above the peak outflow, even in a case of a large incoming flood: the breach flood can be routed by the Obishur check dam without overtopping" and with no release of debris.

It was concluded that "...the additional hazard created by the [new] retention dams does not lead to unacceptable incremental risks for the existing Obishur check dam."²

Biodiversity. All activities will take place on the valley floor, which is essentially barren rocky material that provides no useful habitat for local fauna. There should be no effect on valley walls, which support sparse vegetation in some places. Thus, the project will have no impact on biodiversity.

Traffic. The only traffic in the valley is on the temporary road that has been constructed to allow access to the construction sites. This will present no risk to communities and minor risk to workers. The requirements of the Rogun HPP On-Site Traffic Management Plan that is part of the Rogun HPP E&S Management Plan will apply to drivers (licensing, training) and vehicles (identified with visible markings, daily inspections). All drivers will be trained in those requirements, including speed limits and the use of daily pre-use checklists to verify vehicles are safe to operate. This will effectively reduce potential impacts to negligible.

Wastes. Project activities will generate only very minor amounts of waste. Of most concern would be sanitary wastes generated by workers--the Contractor will provide portable toilets for use by workers, and the collected waste will be removed by a licensed contractor for disposal. The concrete foundation blocks will be cast elsewhere and brought to the site, so there will be no waste concrete. There will be no excess spoil: oversized and undersized material excavated when rocks for gabions are taken from the valley floor will simply be returned.

Labor Management. Potential risks and impacts to workers could include underpayment of wages, deprivation of leave, excess work hours, and other abuses by their employers. The requirements of the Rogun HPP Labor Management Plan that is part of the Rogun HPP E&S Management Plan already apply to these workers and will continue to apply to the Contractor. It is considered unlikely that women will be employed in the work, so there is little or no risk of sexual exploitation, abuse, or harassment or of gender-based violence.

Occupational Health and Safety. Workers will be exposed to a number of potential risks to their health and safety during the construction of the new sediment control barriers. These include working near heavy equipment and vehicles, manually lifting heavy loads (rocks), and airborne dust. As gabions are added to the check dams and they rise from the valley floor, the workers will be working at heights from which falls would be dangerous. To avoid or minimize risks to workers, the Contractor has prepared an Occupational Health and Safety Plan based on a project-specific hazard identification and risk assessment. The Plan follows the guidelines in the OHS Management Plan framework that is part of the Rogun HPP E&S Management Plan. This Plan has been reviewed and approved by the ER.

² The report included the following qualification: "The dynamic of the Obishur river during a flood event is difficult to assess, especially the capacity of the debris-flow discharge to erode the debris previously deposited in the reservoirs...For this risk analysis, simplified and conservative assumptions were considered (rapid failure process, maximization of the mobilized volume of stored debris, etc.)."

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Workers could also be at risk from flash floods if there are heavy rains during the construction period. The Contractor has developed a procedure to evacuate workers quickly in case of major rains, s. This procedure has been reviewed and approved by the ER.

Community Health and Safety. No impacts on community health and safety are expected. Two villages were within four kilometers of the Obishur valley. Kishrogh was on the left bank of the Vakhsh River downstream of Rogun HPP, about 3.2 kilometers from the Obishur valley. Takhakchashma was also on the left bank but was upstream, about 3.6 kilometers from the Obishur valley. The residents of these villages used the valley for grazing. The residents were all resettled under the Rogun Phase 1 Resettlement Action Plan and there is no longer any use of the valley for grazing or watering livestock. The land is state-owned and is not allocated to any individuals or reserved for any specific use.

The closest community is now Pasi Muhraro, which is about 4.4 kilometers from the valley on the right bank of the Vakhsh River. Pasi Muhraro lies within the Rogun HPP construction site and has about 400 residents in 70 households. The village is on the opposite side of the Vakhsh River from the Obishur and thus inaccessible to these residents. The next closest is Sayidon, which is 8.4 kilometers distant, on the left bank of the Vakhsh upstream of the Rogun HPP construction site. Sayidon has about 530 people in 103 households and there are much closer grazing lands as well as intervening mountains that prevent this village from using the Obishur valley. The locations of these villages are shown on **Error! Reference source not found.** Even though there is no known use of the valley, OJSC Rogun will hold preliminary consultations with the leaders of Pasi Muhraro and Sayidon on 23 April 2026 to confirm there is no use of the valley; in preliminary consultations with Pasi Muhraro leaders, they expressed no concerns.

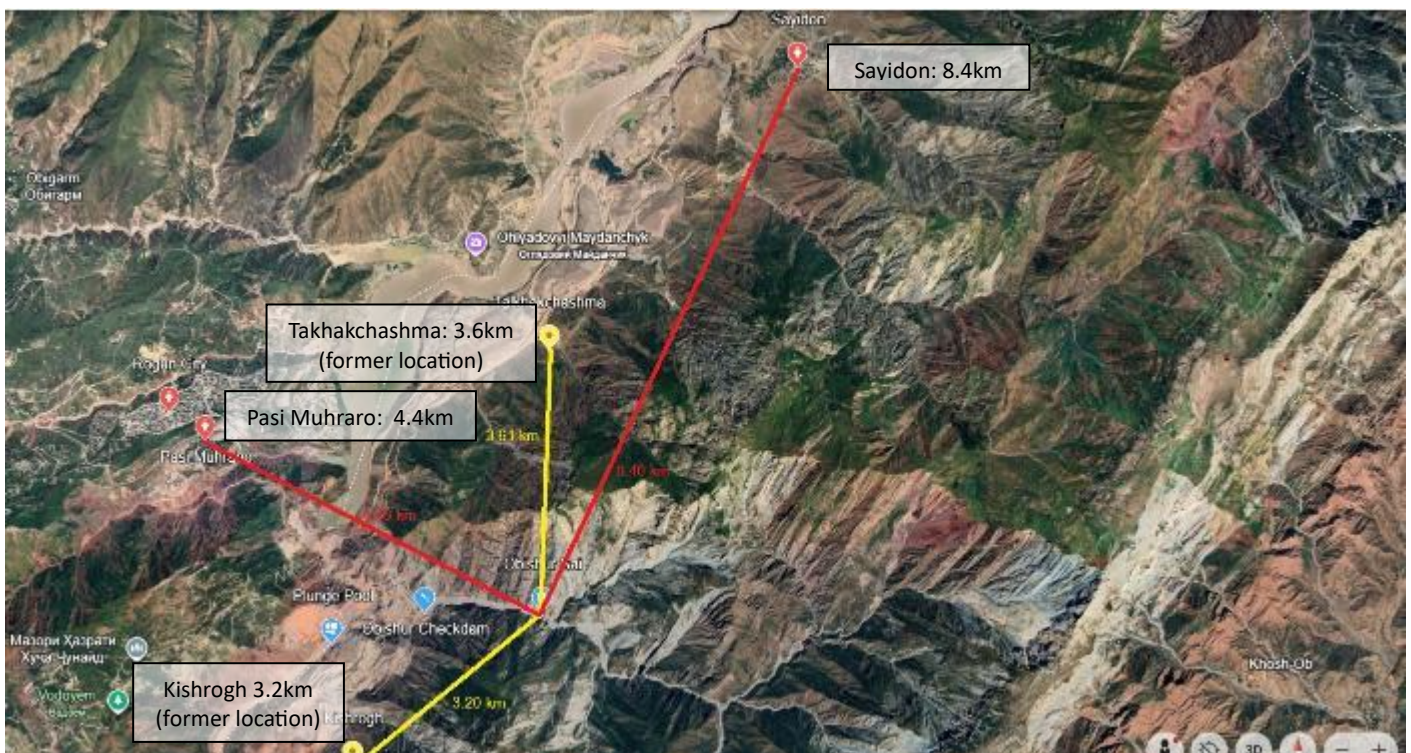


Figure 16. Locations of Current and Former Villages Nearest Obishur Valley

Cultural Heritage. No presence is known or impacts are expected on cultural heritage. The construction is confined and limited to the valley floor, which is filled with rocky debris eroded from valley walls and upstream areas.

Socioeconomic. While the larger soci-economic benefits to the region would relate to sustained implementation of Rogun HPP but there will be very limited beneficial or minor adverse effects of the Obishur check dam construction activities, primarily due to small, temporary and confined nature of activities or through contributions to the local economy from income paid to the workers. Please mention if labor will be sourced from the local community.

5. Roles and Responsibilities

Parties with responsibilities relevant to the project’s E&S performance are identified in Table 3

Table 3. Implementation Arrangements

No.	Entity	Role
1	World Bank and other IFIs	Oversight of E&S performance and supervision
2	Government of Tajikistan)	Project Owner/Borrower. Overall responsibility for the Project.
3	Committee for Environmental Protection	Responsible for issuing Environmental Permits (none are expected to be required)
4	Project Management Group for Energy Facilities Construction under the President of Tajikistan	<ul style="list-style-type: none"> Oversight of project implementation and E&S performance on behalf of the Government Liaison with IFIs
5	OJSC (Open Joint Stock Company) “Rogun HPP”)	The Employer. Responsible for designing and implementing the project
6	ER (Employer’s Representative)	On behalf of the Employer, responsible for supervising implementation of project design and implementation, including the Contractor’s E&S performance and compliance
7	Contractor (TajikGydroElectroMontaj—TGEM)	Responsible for design and construction of the project under contract to OJSC Rogun, including implementation of required mitigation measures and supervision of E&S performance

6. Environmental and Social Management Program

As noted in section 4, the project could result in a number of potential impacts on people and the environment. To assess and control the impacts and to continuously improve the overall environmental and social performance of the Project, the Contractor has developed, and the ER has approved, environmental and social management plans and procedures for project activities that are consistent with this IEE. The management program includes the plans/procedures identified in section 4, notably an Occupational Health and Safety Plan. In addition, the Contractor has included measures for emergency preparedness and response. Among the potential emergencies that are covered is response to overtopping or failure of the new and/or existing check dams as well as flash flooding that would put workers in the valley at risk. Incidents, Non-Conformances, and Corrective Actions

If monitoring observations, inspections, or reviews of records by the Contractor or by the ER or OJSC reveal that the Contractor is not complying with E&S requirements of the contract and approved management plans and procedures, this will be followed up until there are satisfactory responses and compliance. Instances of noncompliance with E&S requirements will be addressed immediately, or as

soon as practicable, with required response actions commensurate with the risk of the nonconformance, which could range from simple non-use of proper PPE to life-threatening misuse of equipment.

Other than for the most minor instances, noncompliance will be documented and repeat violations will always be documented. All parties -- ER, OJSC, and Contractor -- will implement a graduated system of penalties for repeated violations of E&S requirements, including proper use of PPE. The enforcement process will begin with verbal warning, proceed to written notice, and continue through dismissal of personnel for repeated violations if that becomes necessary.

Similarly, a graduated system of penalties will be applied to supervisors and managers, and to companies, if there are repeated instances of safety or other violations or issues associated with work or workers under their supervision. This will include verbal warnings, written warnings, notice of non-compliance, suspension of works, removal of personnel, withholding of payment certificates, appointment of third party to correct at Contractor's expense, termination of contract.

To ensure compliance, the ER and OJSC will be able to apply the full range of remedies that are allowed by the contract, up to and including removal of personnel or withholding payment for interim certificates until works are completed in compliance with contract requirements, including E&S requirements.

The ER and OJSC HSE managers and specialists will have the authority to suspend works immediately if breaches of E&S requirements are observed that could lead to injury, property damage, or serious environmental harm. In such a case, only the project manager and/or the E&S manager will have the authority to allow work to resume, and only then if the issue(s) have been resolved.

In addition, all personnel must be aware that they have the right to refuse unsafe work if they have a reasonable belief that the work they are asked to do is unsafe or could harm them or others. In such a case, the supervisor and project manager must investigate and order appropriate action to reduce the risk or change the job. Personnel who exercise a right to refuse unsafe work will be protected from any retaliation, discrimination, or punishment. Personnel have a duty to report any unsafe work conditions to E&S managers, and this should be encouraged by all parties.

7. Monitoring and Reporting

E&S performance will be reported as follows:

- The Contractor will submit monthly reports to the ER
- The ER will summarize these reports and their own E&S supervision activities in their own monthly reports to OJSC Rogun and PMG.
- The OJSC will submit quarterly reports to PMG
- The PMG will submit semi-annual (twice per year) reports to the World Bank and other IFIs.

The Contractor's monthly reports will be required to include the details in the respective contract and must include the following details of E&S performance, some of which may be in addition to what may be required by the contract:

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- Status of violations and corrective actions reported as outstanding in the previous month's report.
- Summary of activities undertaken and completed in the previous month, including E&S-related training.
- Workforce: number of workers (including subcontract workers), number of local vs other Tajikistan vs foreign, number women and men, number of new hires, and number of terminations and reasons.
- Summary of E&S monitoring/supervision activities: person-days by E&S specialists, number of inspections, areas visited, etc.
- Results of E&S supervision actions: issues identified, and actions taken (warnings or dismissals, stop work orders, requirements for safety equipment or new PPE, other actions).-
- Description of environmental issues observed (spills, improper materials storage, improper waste management, etc.) and actions taken to bring into compliance.
- Description of consultations with local authorities and local community members, including who participated, reasons, and outcomes.
- Description of environmental issues observed (spills, improper materials storage, improper waste management, etc.) and actions taken to bring into compliance.
- Description of consultations with local authorities and local community members, including who participated, reasons, and outcomes.
- Summary of stakeholder grievances received during period and to date, number resolved during period and to date, and number outstanding. For grievances not resolved as of the end of the period, the report should provide a description of grievance, reason for lack of resolution, and actions to be taken in the coming period.
- Summary of worker grievances received during period and to date, number resolved during period and to date, and number outstanding. For grievances outstanding over 30 days, the report should provide a description of grievance, reason for lack of resolution, and actions to be taken in the coming period; and
- Activities to be undertaken in the next month and any issues that are expected to be encountered.

The reports by the ER to PMG Rogun and by OJSC to PMG will summarize the above for contractor they supervise, with emphasis on workforces, occurrence and resolution of violations, and grievance management; and will describe their own supervision activities.

In addition to scheduled reports, significant issues and events will be reported immediately (as soon as possible, always within 48 hours of learning of the incident or accident) by the Contractor to the ER, by OJSC to PMG, and by PMG to Lender(s). Such issues and events will include severe injuries or fatalities to workers, damage to private property or injuries to community members, significant spills or releases of hazardous substances to the environment, protests or incidents of unrest associated with the Project, and other incidents as defined in the contract.

Any such incident will be investigated to identify root causes and actions taken to prevent recurrence. Investigations and actions taken will be documented in root cause analyses, and analysis will be

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conducted and led by PMG and may follow or parallel an official investigation by relevant authorities but will not be delayed until the official investigation is completed.