

Baljuvon – Sari Khosor Road Project ESIA

Contract No. 2025.015035



Non-Technical Summary, May 2026

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Acronyms and Abbreviations

Acronym	Meaning
BAP	Biodiversity Action Plan
BMP	Biodiversity Management Plan
CAREC	Central Asian Regional Economic Cooperation
CEP	Committee for Environmental Protection
CHA	Critical Habitat Assessment
CLO	Community Liaison Officer
E&S	Environmental and Social
EAAA	Ecologically Appropriate Area of Analysis
EBRD	European Bank for Reconstruction and Development
ERPP	Emergency Response and Preparedness Plan
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GBVH	Gender-Based Violence and Harassment
GRM	Grievance Redress Mechanism
IPAM	Independent Project Accountability Mechanism (EBRD)
IUCN	International Union for Conservation of Nature
LMP	Labour Management Plan
NVMP	Noise and Vibration Management Plan
OHSMP	Occupational Health and Safety Management Plan
PBF	Priority Biodiversity Feature
PCM	Project Complaint Mechanism
PIURR	Project Implementation Unit for Road Rehabilitation
PMB	Polymer-Modified Bitumen
RP	Resettlement Plan
SCLO	Social and Community Liaison Officer
SEA/SH	Sexual Exploitation and Abuse / Sexual Harassment
SEE	State Ecological Expertise
SEP	Stakeholder Engagement Plan
TMP	Traffic Management Plan
WQMP	Water Quality Management Plan

I. Purpose of the Document

This document is the Non-Technical Summary (NTS) of the Environmental and Social Impact Assessment (ESIA) prepared for the Baljuvon–Sari Khosor (BSK) Road Upgrade Project in the Republic of Tajikistan. It has been prepared to provide residents, community members, local officials, and other interested parties with a clear, plain-language explanation of the Project, the potential environmental and social impacts identified, and the measures that will be taken to avoid, reduce, and manage those impacts.

The NTS is a public document. It has been prepared in accordance with the requirements of the European Bank for Reconstruction and Development (EBRD) Environmental and Social Policy (2024) and EBRD Environmental and Social Requirement 10 (ESR10) on Information Disclosure and Stakeholder Engagement. The ESIA has been prepared to a standard consistent with EBRD requirements for Category A projects.

1. Overview of the Project

1.1. Background

The European Bank for Reconstruction and Development (the 'EBRD' or the 'Bank') is considering providing financing to the Government of the Republic of Tajikistan for the upgrade of the Baljuvon–Sari Khosor (BSK) road section. Road infrastructure plays a uniquely dominant role in Tajikistan's national transport system — approximately 95% of all freight is transported by road, with approximately 85% of the road network running through mountainous terrain above 500 m elevation. The BSK road provides the primary, and in many places the only, overland connection between Baljuvon district and the wider regional and national road network, linking the district to Bokhtar (Khatlon regional centre), Dushanbe, and other regions.

The road currently functions as an earth and gravel track that is impassable for months each year. The 56 km journey from Baljuvon to Sari Khosor hotel area requires over four hours by four-wheel drive vehicle. Between km 36 and km 56 no formed road exists and vehicles use the riverbed. This results in seasonal isolation of more than 6,000 residents from healthcare, education, markets, and emergency services. Annual traffic growth is estimated at approximately 10% as the district develops. The BSK road is also part of the broader Central Asian Regional Economic Cooperation (CAREC) corridor system and is planned to form a future link northward to the Pamir Highway, elevating its strategic significance beyond local access.

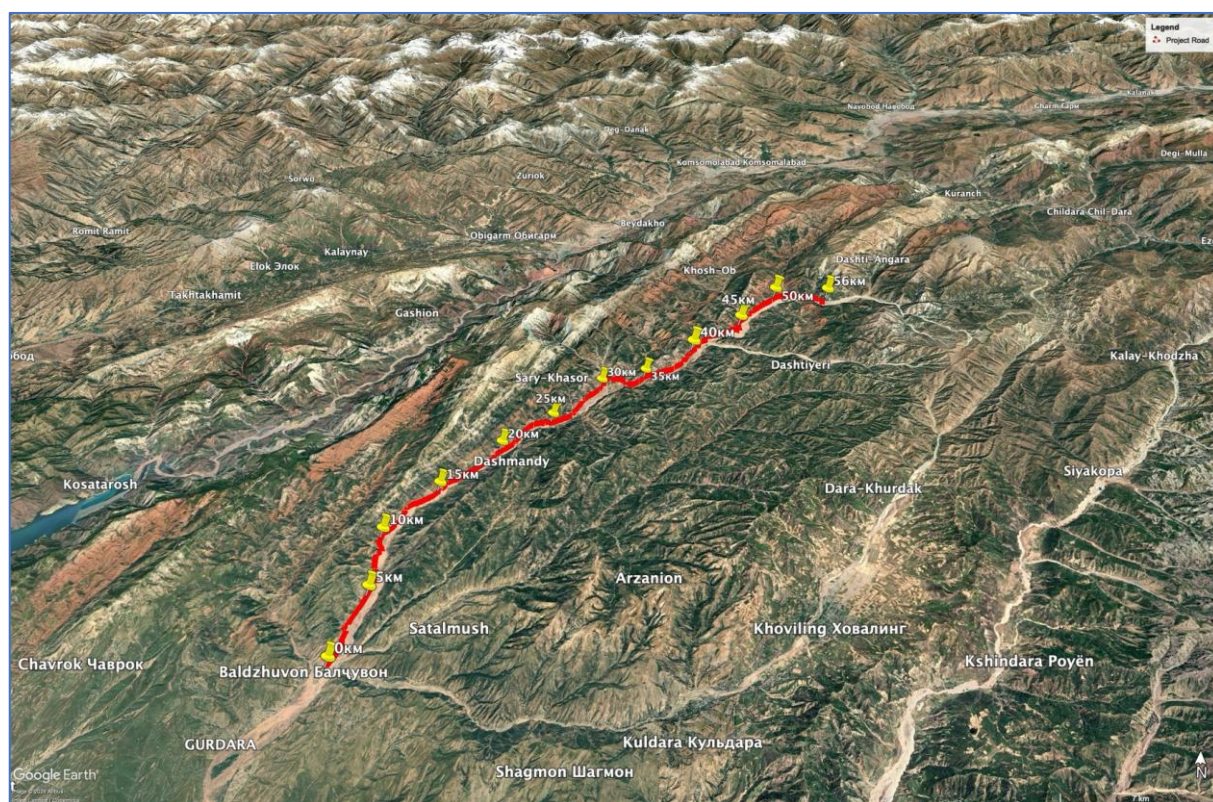
1.2. Project Description

This report presents the Non-Technical Summary (NTS) of the Environmental and Social Impact Assessment (ESIA) prepared for the BSK Road Upgrade Project. It describes the key findings of the assessment in plain, non-technical language. This NTS is one of a suite of environmental and social documents prepared for the Project in accordance with EBRD Environmental and Social Requirements

The BSK Project involves the upgrade of 56 km of an existing unpaved and seasonally inaccessible road to a two-lane Category V standard in Baljuvon District, Khatlon Region. The road begins at the junction with the Dangara–Kangurt–Khovaling road near the bridge over the Shurobdaryo River in Baljuvon and runs north-eastward through the Shurobdaryo (River) valley to the Sari Khosor waterfall area — an emerging tourism destination recognised for its natural and recreational value.

The existing road is an unsurfaced earth and gravel track of variable width (3.7–7 m), originally constructed in the 1960s and passable only by four-wheel drive vehicles. Beyond km 36, there is no formed road and vehicles navigate the Shurobdaryo riverbed on temporary tracks that are regularly washed out. The road traverses steep mountainous terrain (elevation 926 m to 1,648 m) characterised by active geohazards including landslides, mudflows, rockfall, and river bank erosion. The projects geotechnical survey identified 53 discrete active hazard sites along the corridor and the entire corridor sits within an 8-point seismic zone.

The upgraded road will be a two-lane road with a 6.0 m carriageway, 8.0 m subgrade width, and 1.0 m shoulders. Design speed is 30–60 km/h. The road surface will be asphalt concrete with a polymer-modified bitumen (PMB) wearing course, selected following the project's Climate Risk and Adaptation Assessment to ensure performance under projected higher summer temperatures. In settlement sections, the design includes sidewalks, pedestrian crossings, street lighting, kerbs, and reinforced roadside edges.

Figure 1: Road Location

Source: Google Earth / PIURR

The project is divided into two sections: Section 1 (km 0+000 to km 20+100, 20.1 km) and Section 2 (km 20+100 to km 56+300, 36.2 km). Key components include:

- Paved carriageway, shoulders, and continuous drainage infrastructure.
- 10 bridge structures with piled foundations (lengths 19 m to 137 m), designed for a design discharge of approximately 480 m³/s and seismic loading.
- 121 culverts: 49 existing culverts extended or replaced, and 37 new structures and remaining existing culverts to be cleaned and retained.
- Approximately 20.5 km of riverbank protection along the Shurobdaryo River. 7,689 m (Section 1) and 12,795 m (Section 2) of shore protection works - gabion mattresses, Reno mattresses, groynes, stone masonry revetments,
- Slope stabilisation at 100 identified hazard locations, including slope benching, retaining walls, rockfall netting, and revegetation.
- Total earthworks: approximately 2.7 million m³ excavation in total, with approximately 1.3 million m³ of fill material to be sourced from borrow areas, and approximately 1.9 million m³ of unsuitable excavated material will require disposal.
- Temporary facilities: construction camps (peak workforce 300–500 workers), asphalt mixing plant (80–160 t/hr), concrete batching plant, aggregate crushers, and borrow areas.

Table 1: Key Project Facts

Project Name	Baljuvon–Sari Khosor (BSK) Road
Location	Baljuvon District, Khatlon Region, Republic of Tajikistan
Road Length	Approximately 54–56 km (Section 1: km 0+000 to km 20+100; Section 2: km 20+100 to km 56+300)
Road Standard	Two-lane Category V mountain road; 6.0 m carriageway, 8.0 m subgrade, 1.0 m shoulders

Surface	Paved asphalt concrete (polymer-modified bitumen wearing course)
Bridges	10 bridge structures with piled foundations; lengths 19 m to 137 m
Culverts	49 existing culverts extended or replaced; 37 new culverts (121 structures total)
River Protection	Approximately 20.5 km of gabion/Reno mattress riverbank protection along the Shurobdaryo River
Earthworks	Approx. 2.7 million m ³ excavation
Communities Served	Approximately 19 settlements; more than 6,000 residents across two jamoats and approximately 860 households
Financier	European Bank for Reconstruction and Development (EBRD)
Implementing Agency	Project Implementation Unit for Road Rehabilitation (PIURR), Ministry of Transport, Republic of Tajikistan
ESIA Category	Category A (EBRD Environmental and Social Policy 2024) — highest category, requiring full ESIA
Construction Period	Approximately three years [exact dates to be confirmed]

1.3. ESIA Process

1.3.1 Applicable standards and permitting

The Project complies with national legislation of Tajikistan and with the EBRD Environmental and Social Policy (2024). Key areas covered include environmental assessment, labour and working conditions, community health and safety, land acquisition, and biodiversity protection. Where national requirements differ from EBRD standards, the Project applies the higher EBRD requirements.

At national level, the Project has obtained environmental approval through the State Ecological Expertise (SEE), issued by the Committee for Environmental Protection (CEP). All conditions attached to the SEE conclusion have been reviewed by PIURR and will be incorporated into the Contractor's Construction Environmental and Social Management Plan before any works commence. Additional permits will be required for specific activities such as water use, emissions, and construction facilities, and must be obtained before the relevant works begin.

1.3.2. Stakeholder Engagement and Consultation

Stakeholder engagement has been carried out throughout the preparation of the Project in accordance with EBRD requirements. Consultations with communities along the corridor, local authorities, and relevant institutions introduced the Project, explained potential impacts, and gathered feedback from affected people. Key issues raised to date include strong support for improved road access; concerns about construction traffic safety, particularly near schools; questions regarding land acquisition and compensation; requests for local employment opportunities; and concerns about maintaining irrigation water supply during construction.

Engagement is ongoing. The draft ESIA and associated project documents have been disclosed for public review and comment during a 120-day disclosure period. All comments received will be reviewed and addressed, and the final ESIA package updated accordingly before submission to the EBRD. A Stakeholder Engagement Plan (SEP) has been prepared to ensure continued consultation and information disclosure throughout the Project lifecycle, and a Grievance Redress Mechanism is in place to allow concerns or complaints to be raised and addressed at any time.

1.4. Why is the Project Needed

The BSK road is the only surface connection for more than 6,000 residents to healthcare, education, markets, and emergency services. Without intervention, the road will continue to deteriorate. Active



geohazards, river erosion, and the absence of any formed road beyond km 36 mean that the corridor's condition will worsen as climate change intensifies rainfall and snowmelt events — increasing the frequency and severity of the seasonal isolation that communities already experience.

Beyond the immediate community need, the Project supports Tajikistan's broader development objectives. The BSK corridor forms part of the Central Asian Regional Economic Cooperation (CAREC) network and is planned as a future link northward to the Pamir Highway. Upgrading it to an all-season paved standard will improve connectivity at district, regional, and national levels, support agricultural market access, and create conditions for the development of sustainable tourism around the Sari Khosor waterfall area.

The Project therefore addresses both an urgent local access need and a longer-term strategic infrastructure gap — and doing nothing is not a viable option.

2. Environmental and Social Baseline

2.1. Landscape and Geography

The project corridor lies in the south-western foothills and valley systems of the Pamir-Alay mountain range. The road rises from approximately 926 m above sea level near Baljuvon to approximately 1,648 m near Sari Khosor hotel — a net elevation gain of about 720 m over 56 km. The terrain is steep throughout, with valley sides commonly exceeding 30–45 degrees, and gorge sections where the river runs directly against near-vertical valley walls.

The Shurobdaryo flows along the corridor for its length. It is an active, high-energy mountain river prone to seasonal flooding during spring snowmelt (March–May) and intense rainfall events. The river has a natural tendency to migrate laterally, causing repeated erosion of the existing road embankment. Engineering surveys recorded numerous geohazard sites along the corridor, including active landslides, mudflows, rockfall zones, and areas of severe river bank erosion.

2.2. Climate and Natural Hazards

The project area has a continental mountain climate with cold winters (average minimum temperatures down to -10°C) and warm dry summers (average maximum temperatures up to 32°C). Precipitation falls mainly as snow in winter at higher elevations. The spring snowmelt delivers the river's peak flows. Intense summer rainfall events generate flash floods and debris flows in tributary valleys.

The project's Climate Risk and Adaptation Assessment confirmed that extreme rainfall events and high summer temperatures are projected to increase in frequency and intensity over the operational life of the road. The design has been adapted accordingly, including the use of enhanced drainage specifications and polymer-modified bitumen for the road surface.

2.3. Water Resources

The Shurobdaryo is the primary water source for communities along the corridor. Gravity-fed irrigation channels from the river and its tributaries support subsistence and dehqan farming. Springs and surface water intakes feed household water supplies. Baseline water quality monitoring found that suspended solids concentrations already exceed national standards for domestic use at most points along the river — primarily due to natural sediment from active geomorphological processes.

2.4. Ecology and Biodiversity

The Shurobdaryo supports confirmed populations of Amu Darya trout (*Salmo trutta oxianus*), a fish listed as Vulnerable in Tajikistan's national Red Data Book. The trout undertakes an autumn spawning migration (November–February) during which it is sensitive to disturbance of the riverbed and water quality; this spawning migration is recognised as a priority biodiversity feature, so in-channel and near-channel works are carefully managed around it.

A Critical Habitat Assessment (CHA) was carried out in accordance with EBRD ESR6 (2024). The assessment confirmed two Critically Endangered wild pear trees along the corridor — *Pyrus tadshikistanica* (a species found only in Tajikistan) and *Pyrus korshinskyi*. Because these globally threatened species are present, the corridor qualifies as Critical Habitat under EBRD rules. This means the Project must achieve a net gain for these species — leaving them better off overall — rather than only avoiding harm. The Project will do this first by adjusting the road design to avoid the trees where possible, and where this is not possible, through a tree-planting and conservation programme delivered with a regional botanic garden initiative.

The assessment also identified a number of other priority species and habitats that the Project must protect so that there is no net loss. These include the Eurasian Otter (*Lutra lutra*, nationally Endangered), for which field signs were confirmed near Shahidon (around km 30); the Bukhara deer



(*Cervus hanglu bactrianus*, Critically Endangered); the Eastern Imperial Eagle, Marbled Polecat, Cinereous Vulture, wild apple (*Malus sieversii*), snow leopard, lynx, and several nationally protected plants. The braided gravel banks along the Shurobdaryo are themselves a priority habitat and are protected from unnecessary disturbance.

A Bukhara deer breeding facility managed under the Sari Khosor Nature Park is located at Dashtaro village (around km 35), within the distance over which construction noise could be felt. Bukhara deer are highly sensitive to sudden noise, particularly during the calving season, so noise and vibration are specifically controlled near the facility.

The Sari Khosor Nature Park is a nationally designated protected area located approximately 5 km from the corridor at its closest point, as confirmed by the Committee for Environmental Protection (CEP). No Project works directly affect the Nature Park, but improved road access could increase visitor numbers, and the Project will manage the indirect effects of greater activity in the area.

2.5. Communities and Livelihood

Approximately 19 settlements are located along or near the road corridor, with a combined population of more than 6,000 residents across two jamoats and approximately 860 households. The two largest concentrations are near Shahidon (approximately km 31) and Mullokoni (approximately km 53). Most households depend on subsistence and dehkan farming, supplemented by animal husbandry. Agricultural plots are small, irrigated from channels fed by tributary streams, and located on the limited flat land available in the valley.

Women in the project area have limited mobility and economic opportunity due to poor transport links, traditional gender roles, and reduced access to education and health services. The Project offers an opportunity to improve mobility and access to services for women and girls.

Vulnerable groups along the corridor include elderly and disabled residents, female-headed households, the poorest households that own no vehicle and rely on the road on foot or by animal, and communities in the upper valley (km 36–56) who are most severely affected by seasonal isolation.

3. Alternatives Considered

The ESIA examined a range of alternatives to assess whether the Project represents the best approach to meeting the project objectives.

3.1. The “Without Project” alternative

Doing nothing is not a viable option. The existing track will continue to deteriorate, geohazards will worsen, and communities will face increasing isolation and safety risks. This alternative was rejected.

3.2. Route Alternative

The project road follows an existing alignment for which there is no practicable alternative. The Shurobdaryo valley is the only feasible corridor connecting the Baljuvon district to the Sari Khosor area. New routes through alternative mountain passes were assessed but found to be technically and economically infeasible and potentially more environmentally damaging. The Project therefore rehabilitates and upgrades the existing alignment.

3.3. Road Standard Alternatives

A lower road standard (e.g. Category VI or an unsealed road) was considered. However, this would not deliver year-round accessibility and would not meet the load-bearing and safety requirements needed for the expected traffic volumes, including agricultural and tourism vehicles. Category V was confirmed as the appropriate standard.

3.4. Design Choices to Reduce Impacts

Within the adopted alignment and standard, a number of design choices have been made specifically to reduce environmental and social impacts:

- Works largely confined to the existing right-of-way to minimise land take.
- Polymer-modified bitumen for the wearing course to increase durability under higher temperatures and reduce maintenance frequency.
- Enhanced hydraulic design standards (100-year return period rainfall, debris flow multipliers of 2.6–4.8) for drainage structures.
- A 20% climate uplift to hydraulic design parameters is recommended for incorporation into the final design prior to construction.
- Piled bridge foundations to address riverbed scour and seismic loading without major in-channel disturbance.
- Slope benching at high-risk sections to intercept runoff and reduce slope instability.
- Pedestrian crossings, footways, and street lighting in all settlement sections to protect residents.
- Permanent roadside service structures designed to support safe road use and tourism at the Sari Khosor end.

4. Potential Impacts and Mitigation Measures

The ESIA assessed the potential environmental and social impacts of the Project during construction and operation. The table below summarises the key impacts and their significance before and after mitigation measures are applied. Detailed management measures are set out in the Environmental and Social Management Plan (ESMP).

Table 2: Summary of Impacts, Mitigation and Residual Significance

Impact Topic	Phase	Residual Significance	Key Mitigation Measures
Water quality & aquatic habitat (Shurobdaryo)	Construction	Low to Moderate	Strict in-channel works exclusion during trout spawning (Nov-Feb) and spring flood peak; cofferdams and turbidity curtains at bridge sites; spill prevention and emergency response; no bridge deck drainage directly to river. Following mitigation, residual impacts are assessed as low to moderate and manageable
Brook trout (Priority Biodiversity Feature)	Construction	Low to Moderate	Seasonal in-channel works restrictions; no gravel extraction without aquatic biodiversity assessment; spawning gravel protection at all bridge sites; pre-construction fish survey updates.
Slope instability & geohazards	Construction	Moderate	Slope Stabilisation Plan for 100 identified hazard sites; slope benching; continuous geotechnical monitoring; blasting vibration controls; revegetation of disturbed slopes.
Community access disruption	Construction	Moderate	Minimum 48 hours advance notice of closures; emergency vehicle access maintained at all times; irrigation channels repaired within 24 hours. No alternative routes exist along the corridor; therefore, access will be maintained through phased construction, controlled traffic management, and temporary diversions within the existing alignment where feasible.
Community health & safety (road accidents)	Construction	Moderate	Physical speed calming at all settlements; flaggers at settlement entry/exit; dedicated school crossing marshals; no heavy vehicles through settlements 22:00–06:00; zero-tolerance speeding policy.
Bukhara Deer Farm (noise)	Construction	Moderate	Site-specific noise and vibration controls at Dashtaro village; no blasting within designated exclusion distances during calving season; coordination with Nature Park administration.
Gender-based violence & SEA/SH	Construction	Moderate	Code of Conduct signed by all workers as condition of employment; survivor-centred confidential reporting; SEA/SH reinforced monthly; community-accessible reporting channels via SCLO.
Land acquisition & livelihoods	Construction / Pre-construction	Moderate	RP implemented before any works on each parcel; full compensation paid before land accessed; livelihood restoration programme; RP Completion Audit by independent expert.
Labour influx (workforce-community tensions)	Construction	Not Significant	Workers housed in self-sufficient camps; no informal accommodation in communities; mandatory Code of Conduct; community liaison officer in post before works begin.

Sari Khosor Nature Park (indirect access impacts)	Operation	Moderate	Anti-poaching awareness integrated into construction worker induction; Nature Park management capacity support; tourism management framework to be developed; coordination with Nature Park administration.
Road safety for pedestrians & users	Operation	Not Significant	Road Safety Audit before opening; guardrails, crash barriers, road markings, speed signs; pedestrian crossings and lighting in settlements; six-monthly road safety inspections.
Noise (traffic)	Operation	Not Significant	Noise-reducing asphalt surfacing; post-construction noise survey within first year of operation; additional mitigation if standards exceeded.
Hydrology & drainage (operation)	Operation	Not Significant	Properly designed drainage eliminates current uncontrolled runoff; bridge deck drainage intercepted before river discharge; routine drainage maintenance programme.

Note: 'Significant' indicates a residual impact that remains notable even after mitigation; 'Moderate' indicates a manageable residual impact with targeted controls in place; 'Not Significant' indicates the impact is adequately controlled by the proposed measures.

4.1. Water Quality and the Shurobdaryo River

The Shurobdaryo runs alongside the road for most of its length and is the single most sensitive environmental receptor in the project area. It supports communities' irrigation and drinking water, migratory brook trout (a Priority Biodiversity Feature under EBRD ESR6), and a likely presence of the Eurasian Otter. Baseline monitoring found suspended sediment already exceeds domestic use standards at most points due to natural geomorphological processes.

Construction activities that could affect water quality include: earthworks and soil disturbance near the river; in-channel foundation works at bridge sites; fuel and chemical storage along the corridor; concrete batching at bridge sites; camp wastewater; and borrow material extraction from the riverbed. The ESMP sets out strict controls for each of these, including:

- No in-channel works during the brook trout autumn spawning migration (1 November to 28 February)
- No major in-channel construction during the spring snowmelt and flood peak (April to May).
- Cofferdams and turbidity curtains at all bridge construction sites.
- Absolute prohibition on any hydrocarbon discharge — the national standard (0.05 mg/l TPH) effectively means any visible sheen constitutes non-compliance.
- Highly alkaline concrete washwater must be treated before any possibility of reaching the river.
- Borrow material extraction from riverbed deposits only after environmental permit from CEP and hydraulic assessment confirming no adverse effects on river morphology or aquatic habitat.
- Emergency spill response plan covering the full 56 km corridor, with equipment pre-positioned at camps.

4.2. Slope Stability and Natural Hazards

The corridor passes through terrain where numerous hazards have been recorded, including landslides, mudflows, rockfall zones, and severe river bank erosion. Construction activities — particularly earthworks, blasting, and vegetation removal — can trigger or accelerate these processes if not carefully managed. The ESMP requires:

- A Slope Stabilisation Plan developed before construction begins, identifying site-specific stabilisation measures at all 100 hazard locations.
- Slope benching (stepped terraces cut into cut slopes) to reduce slope angles and intercept runoff at high-risk sections.



- Continuous geotechnical monitoring during construction in geologically sensitive areas.
- Controlled blasting with vibration monitoring near settlements, the Bukhara deer farm, and infrastructure.
- Prompt revegetation of all disturbed slopes to prevent erosion and re-establish stability.

4.3. Communities: Access, Safety and Livelihoods

The main risks to communities during construction are: temporary disruption to road access and irrigation channels; construction traffic accidents, particularly involving children near schools; potential for tensions between a large non-local workforce and local communities; and land acquisition impacts on households and farms.

Key protection measures include:

- A Social and Community Liaison Officer (SCLO) in post, with clearly advertised contact details, before any works begin in each area.
- Minimum 48 hours' advance notice to communities before any planned road closure or access restriction.
- Emergency vehicle access maintained through all active work sections at all times.
- Physical speed calming measures (not signage alone) at all settlements; flaggers deployed at entry and exit points during heavy vehicle movements.
- Dedicated school crossing marshals at school start and finish times.
- All open excavations fenced by end of each working day.
- All irrigation channels and agricultural access infrastructure damaged during construction repaired within 24 hours.
- Workers housed in self-sufficient camps — not in community residential areas — to reduce competition for local resources.
- Resettlement Plan (RP) implemented in full before any works begin on affected land, with compensation paid before access is taken.

4.4. Gender and Vulnerable Groups

The Project recognises that construction and operation of a new road can affect women, girls, and vulnerable community members differently from the general population. Specific measures include:

- Women-only focus groups and consultations to ensure women's voices are heard in project planning and monitoring.
- Survivor-centred, confidential reporting channels for sexual exploitation and abuse / sexual harassment (SEA/SH) — accessible to both workers and community members.
- A mandatory Code of Conduct signed by all workers as a condition of employment, with zero-tolerance enforcement for gender-based violence and harassment.
- Road safety measures in settlements are specifically designed to protect pedestrians, school children, and women who are more likely to be on foot.

4.5. Biodiversity: Sari Khosor Nature Park and Protected Species

The Sari Khosor Nature Park is the only nationally designated protected area within the project area of influence. No project works directly affect the Nature Park, which lies approximately 5 km from the road corridor at its closest point, as confirmed by the Committee on Environmental Protection.

A Critical Habitat Assessment was conducted in accordance with EBRD ESR6. It confirmed that the corridor qualifies as Critical Habitat because two Critically Endangered wild pear species are present, and it identified a number of further priority species and habitats that the Project must protect. The most significant features for construction management are:

- **Wild pear trees** (*Pyrus tadshikistanica* and *Pyrus korshinskyi*, both Critically Endangered) — confirmed at several points along the route. The Project will first adjust the road design to avoid them where possible. Where avoidance is not possible, a conservation and planting



programme — developed with a regional botanic garden project — will ensure an overall increase in these species.

- **Amu Darya trout** (*Salmo trutta oxianus*) — confirmed in the Shurobdaryo at several points. This migratory fish spawns in autumn (November–February), when it is highly sensitive to disturbance of the riverbed and water quality. All in-channel and bankside works are prohibited during this period, and spawning gravels at all bridge sites are protected.
- Eurasian Otter (*Lutra lutra*, nationally Endangered) — signs confirmed near Shahidon (around km 30). A pre-construction survey for otter resting sites is required before any bankside or bridge works begin in each section.
- Bukhara Deer (*Cervus hanglu bactrianus*, Critically Endangered) — a breeding facility managed by the Sari Khosor Nature Park is located at Dashtaro village (around km 35), within the construction noise influence zone. Bukhara deer are highly sensitive to sudden noise, particularly during the calving season (April–June).

The Project carries indirect risks to the Nature Park from improved road access leading to increased visitor pressure and potential for illegal hunting or fishing. Mitigation measures to address all biodiversity impacts include:

- Avoidance of wild pear trees through design adjustment, and a conservation planting programme to achieve a net gain.
- No in-channel or bankside works between 1 November and 28 February; spawning gravel protection at all bridge sites.
- Pre-construction otter holt and Ibisbill nesting surveys before works begin in each section; exclusion zones around confirmed active sites.
- Site-specific noise and vibration controls at Dashtaro village; no blasting during Bukhara deer calving season.
- Anti-poaching and wildlife protection awareness included in all construction worker inductions.
- Coordination with the Sari Khosor Nature Park administration throughout construction and into operation.
- Post-opening monitoring of visitor numbers and engagement with Nature Park management to address any increase in access pressure.

4.6. Cultural Heritage

The ESIA cultural heritage baseline study reviewed the archaeological and built heritage of the Khatlon Region, which has documented occupation spanning from the Palaeolithic period through the medieval Khuttal Kingdom to the modern era. The project corridor is in a narrow, steep-sided valley, which limits the availability of flat terrain suitable for sustained archaeological occupation and reduces — but does not eliminate — the likelihood of encountering significant archaeological deposits.

The following specific cultural heritage receptors were identified during the ESIA:

- Kal'ai Baljuvon Fortress — a modern reconstruction of a 17th-century fortress located approximately 125 m northwest of the road start at km 0.0 in Baljuvon town. Registered as a national monument by the Government of Tajikistan; associated with the 1888 Uprising of the Wose. The area around the fortress is considered high-risk for archaeological deposits and requires careful survey and monitoring before and during any works at km 0.



- Possible stone ruins near Sari Khosor — satellite imagery identifies what may be collapsed stone foundations of a large structure adjacent to the road alignment. Field investigation required before works in this area commence.
- Mosque at approximately km 37 — located approximately 170 m north of the road alignment; construction noise, dust, and access disruption may affect religious activities. Site-specific measures in the Community Health and Safety Plan will minimise disruption.
- Local cemeteries — Two cemeteries (Shulash and Langar) have been identified and confirmed through the ESIA process. Site-specific boundary protection and access measures have been agreed and will be implemented during construction.
- The nearest UNESCO World Heritage component (Khishttepa Buddhist Temple, part of the Ancient Khuttal serial property) is approximately 22 km east of the route and will not be affected by the Project.

A Chance Finds Procedure is required for all earthworks and ground disturbance. If any object of potential archaeological significance is discovered during excavation, all works in that area must stop immediately, the find must be secured and protected, and the National Museum of Antiquities of Tajikistan must be notified before works can resume. All workers will be trained in this procedure during site induction, before any excavation begins. PIURR is responsible for ensuring that all cultural heritage documentation and monitoring records are properly maintained.

4.7. Labour and Working Conditions

The Project must comply, at a minimum, with: (i) national labour, employment, and social security laws of the Republic of Tajikistan; (ii) the fundamental principles and standards embodied in ILO core conventions ratified by Tajikistan; and (iii) EBRD ESR2 on Labour and Working Conditions. A Labour Management Plan (LMP) and Worker Accommodation Management Plan have been prepared as part of the ESMP. These require the Contractor to, as a minimum:

- Provide written employment contracts to all workers at the start of employment, in a language they understand, with terms and conditions at least equal to similar work in similar industries in the region.
- Ensure equal pay for equal work, non-discrimination, and equal opportunity regardless of gender, nationality, religion, or disability.
- Prevent and prohibit child labour (no workers under 18) and forced labour in all its forms.
- Respect freedom of association and the right to collective bargaining.
- Establish a formal grievance mechanism for workers, including means for anonymous complaints and female grievance officers available to female workers.
- Maintain zero tolerance for gender-based violence and harassment (GBVH) and sexual exploitation and abuse (SEA/SH). All workers to sign the Project Code of Conduct as a condition of employment.
- House the construction workforce in self-sufficient camps providing adequate accommodation, catering, water, sanitation, medical facilities, and recreation. Workers must not be permitted to establish informal accommodation in community residential areas.
- Design, construct, and maintain worker accommodation in line with EBRD and IFC Guidelines for Workers' Accommodation (2009) and national sanitary norms.

Young workers, persons with disabilities, migrant workers, and workers engaged by subcontractors will be considered as potentially vulnerable and will receive equivalent workplace conditions. Contractors used for specialised works must flow down labour standards through their subcontracting arrangements. Independent external labour audits will be conducted annually throughout the construction period in line with EBRD requirements.

4.8. Health and Safety

Health and safety is a critical priority for the Project. All workers — including manual labourers and subcontractor staff — must receive health and safety induction training before being dispatched to



work sites. A Health and Safety Management Plan (OHSMP) compliant with national legislation, EBRD ESR4 must be in place throughout construction.

Specific risks that the OHSMP must address for the BSK project include:

- Work adjacent to the Shurobdaryo River — risk of drowning and flood events; bankside work near fast-flowing and debris-laden water.
- Work on steep slopes and in gorge sections — risk of falls, rockfall, and slope failure.
- Rock drilling and blasting operations — blast vibration, flyrock, toxic fumes, and noise.
- Bridge construction — working at height, lifting operations, in-channel piling in an active river.
- Remote location with limited access to medical facilities — the Contractor must assess national and local emergency response capabilities and response times, and provide on-site first aid and medical facilities at construction camps if local capabilities are insufficient.
- Seismic risk — all works are within an 8-point seismic zone; emergency response planning must account for seismic events.

The OHSMP must specify: roles and responsibilities; PPE requirements; safety training programmes (in workers' own languages); incident reporting (workhours, lost-time injuries, fatalities, near misses); root cause analysis for all incidents; internal and external audit procedures; and emergency response principles including evacuation procedures.

An Emergency Response and Preparedness Plan (ERPP) covering fire, flood, slope failure, traffic accident, and medical emergency scenarios must be approved before construction begins.

4.9. Project Benefits

The Project's primary purpose is to improve the lives of communities along one of Tajikistan's most isolated mountain corridors. Its benefits extend from the immediate construction period through to the long-term operation of the upgraded road.

Access and connectivity. More than 6,000 residents who currently face months of seasonal isolation each year will gain year-round reliable paved road access. For communities in the upper valley — where no formed road currently exists — this is a transformational change. Access to the hospital at Shahidon, secondary schools, district markets, and emergency services will be possible for the first time on an all-season basis.

Road safety. The upgraded road will be designed to modern safety standards throughout, with paved surface, guardrails, pedestrian crossings, footways, and street lighting in all settlement sections. This directly addresses the dangerous conditions currently experienced by pedestrians, schoolchildren, livestock, and drivers sharing a narrow, deteriorated track.

An independent Road Safety Audit was carried out during detailed design, and the design team incorporated its recommendations to address the safety concerns identified. A further independent Road Safety Audit will be carried out before the road opens to traffic, with any additional measures implemented prior to operation, and the road will be subject to six-monthly safety inspections once in use.

Livelihoods and local economy. Reliable all-season access transforms the commercial viability of agriculture along the corridor. Farmers who currently cannot move produce to market during road closures will be able to do so year-round, increasing household incomes. Construction will generate local employment, with targeted recruitment of women and local unskilled and semi-skilled workers.

Tourism. The Sari Khosor waterfall area at the upper end of the corridor is an emerging destination of regional significance. Improved road access creates the conditions for sustainable tourism development that can benefit local communities economically while being managed to protect the natural environment.



Infrastructure resilience. The existing drainage infrastructure along the corridor is inadequate and contributes to chronic flooding, sedimentation, and repeated road damage. The Project replaces and upgrades culverts throughout and installs new structures where none exist, eliminating a principal cause of road deterioration. The design has been adapted for projected climate change, with enhanced hydraulic standards and polymer-modified bitumen selected to perform under higher future temperatures.

5. Environmental and Social Impacts Management

The Project's environmental and social management framework consists of a suite of interlinked documents prepared in accordance with EBRD requirements. These set out in detail the measures, responsibilities, monitoring requirements, and reporting arrangements for managing all identified risks and impacts.

The roles, responsibilities, and monitoring systems for delivery of all avoidance, mitigation, and management measures are detailed in the Project's Environmental and Social Management Plan (ESMP), the Environmental and Social Action Plan (ESAP), and the ESIA. Implementation of all measures requires appropriate staff, financial resources, equipment, and support systems. It is the responsibility of all PIURR staff, the Construction Supervision Consultant (CSC), and project contractors to comply with the requirements of these documents.

Table 3: Key Management Documents

Environmental and Social Management Plan (ESMP)	The master management document, covering all environmental and social risks. Includes 16 detailed sub-plans (ESMP 1 – ESMP 17).
Contractor CESMP	The Contractor's site-specific version of the ESMP, developed before construction starts and updated as works progress.
Biodiversity Management Plan (BMP)	Detailed biodiversity mitigation and monitoring, including Amu Darya trout, Eurasian Otter, Bukhara deer, wild pear trees, and the Sari Khosor Nature Park. Supported by a Biodiversity Action Plan (BAP) setting out the net-gain commitment for wild pears and no-net-loss commitments for other priority species (forms part of the ESMP).
Resettlement Plan (RP)	Compensation and livelihood restoration for all project-affected persons.
Stakeholder Engagement Plan (SEP)	How the project will communicate with and involve communities throughout construction and operation.
Labour Management Procedures (LMP)	Management of worker rights, working conditions, and labour-influx risks (forms part of the ESMP)
Environmental and Social Action Plan (ESAP)	The legally binding list of actions the PIURR must implement, attached to the loan agreement with EBRD.

5.1. Stakeholder Engagement Plan

5.1.1 Engagement with Communities

The SEP and its implementation are the responsibility of PIURR, supported by a dedicated Community Liaison Officer (CLO) within the PIURR team and a Social and Community Liaison Officer (SCLO) appointed by the Contractor. The SCLO must be in post, with clearly advertised contact details, before any works begin in each section of the corridor, and is responsible for day-to-day community engagement, first-tier GRM management, and reporting of engagement activities to PIURR and the EBRD.

Planned ongoing engagement activities include:

- Community meetings before construction begins in each section, explaining scope, timing, expected impacts, and mitigation measures, with at least 48 hours' advance notice of any planned road closure or access restriction.
- Regular community updates on construction progress, planned disruptions, and environmental and social monitoring results, delivered through the most accessible means for each settlement including direct engagement, community notice boards, and liaison with local Jamoat authorities.



- Women-only focus groups and consultations at each settlement throughout construction to ensure women's voices and concerns are captured and addressed.
- Road safety awareness sessions at schools along the corridor, delivered every six months throughout construction.
- Targeted outreach to vulnerable groups — including elderly residents, female-headed households, and communities in the upper valley most exposed to construction disruption — at intervals of no more than three months throughout construction.
- Disclosure of semi-annual environmental and social monitoring reports and a plain-language summary of results to communities at regular engagement meetings.
- A "You Said / We Did" record maintained and publicly disclosed following all major engagement events, demonstrating how community feedback has been considered and acted upon.

5.1.2. Grievance Redress Mechanism (GRM)

The Project has established a Grievance Redress Mechanism (GRM) to receive and address concerns, complaints, or questions from anyone affected by Project activities. The GRM is available throughout design, construction, and operation, is free of charge, does not require legal representation, and is available in Tajik and Russian. Complaints may also be submitted anonymously.

Grievances can be submitted through any of the following channels:

- **In person** — via the Community Liaison Officer or Social and Community Liaison Officer, who will be present in the project area throughout construction, or directly to PIURR
- **In writing** — via grievance boxes located at construction sites and in public locations within settlements, or by submitting to local Jamoat or district authorities
- **By telephone** — +992 933 310 011
- **By email** — sharis_piurr@mail.ru
- **Anonymously** — without providing personal identification, including for SEA/SH-related complaints

All grievances are recorded and tracked until resolution. Complainants will receive acknowledgement within 5 working days. Straightforward cases will be resolved within 15 working days; more complex cases within 30 working days where feasible. Where additional time is required, the complainant will be informed in writing of the reason and the revised timeline.

If a grievance cannot be resolved at site level it is escalated to PIURR management. Urgent issues — including community safety, serious environmental incidents, occupational health and safety risks, and sexual exploitation, abuse, or harassment (SEA/SH) — are escalated immediately and treated as a priority.

Complaints related to SEA/SH are handled through a separate, confidential, survivor-centred process and may be submitted through the SCLO or via dedicated confidential channels [details to be inserted]. If any grievance remains unresolved after escalation through the project GRM, it may be referred to the EBRD's independent Project Accountability Mechanism (IPAM).

5.2. Land Acquisition and Resettlement

Some land acquisition is required to accommodate widening of the road, construction of new structures, and placement of ancillary facilities. A Resettlement Plan (RP) has been prepared in accordance with EBRD requirements and national law. It identifies 116 directly affected land parcels across 99 affected households along the corridor, with Shaidon (35 parcels) and Toidara (31 parcels) representing the most significantly affected communities.



The key commitments are:

- No construction works will begin on any parcel of land until the affected person has been fully compensated and has been notified in writing by PIURR.
- Compensation will be paid at full replacement cost.
- Affected households whose livelihoods are disrupted will receive support through the Livelihood Restoration Plan.

5.3. Environmental and Social Management Plan

The Environmental and Social Management Plan (ESMP) is prepared as a standalone document forming part of the ESIA package. It sets out all environmental and social mitigation measures, monitoring requirements, responsibilities, and reporting arrangements for the construction and operation phases. The ESMP includes a structured set of contractor sub-plans covering key environmental and social risks such as biodiversity, water quality, waste management, labour, and community health and safety, to be developed by the Contractor and approved by the CSC before the relevant works commence.

PIURR is committed to implementing the ESMP and ESAP and will work with and direct contractors to ensure full implementation and compliance. Semi-annual environmental and social monitoring reports will be submitted to the EBRD throughout construction and early operation.

5.4. Environmental and Social Action Plan

An Environmental and Social Action Plan (ESAP) has been prepared for the Project to meet EBRD requirements. The ESAP is a legally binding document forming an attachment to the Loan Agreement between the EBRD and the Government of Tajikistan. It sets out specific, time-bound actions that PIURR must implement to ensure the Project complies with all applicable EBRD ESRs. Implementation of the ESAP will be monitored by the EBRD and independently verified by the Lender's Technical Adviser. Progress against the ESAP will be reported in each semi-annual monitoring report.

5.5. Monitoring and Reporting

The PIURR is required to submit semi-annual environmental and social monitoring reports to the EBRD throughout the construction and early operation period. These reports will cover: progress against the Environmental and Social Action Plan; environmental monitoring results (air, water, noise, biodiversity); social performance including grievances received and resolved; and any incidents. The EBRD's Lender's Technical Adviser will independently verify the reported information.

6. Glossary of Key Terms

Category A (EBRD)	The highest environmental and social risk category under EBRD policy, requiring a full ESIA and the highest standard of environmental and social management.
CEP	Committee for Environmental Protection — the national regulatory authority responsible for environmental permitting in Tajikistan.
CLO / SCLO	Community Liaison Officer / Social and Community Liaison Officer — the project staff member responsible for day-to-day engagement with communities.
Critical Habitat	Under EBRD ESR6 (2024), areas of high biodiversity value requiring special protection. A Critical Habitat Assessment (CHA) was conducted for this project and concluded that the corridor qualifies as Critical Habitat owing to the presence of two Critically Endangered wild pear species, which carry a net-gain obligation. A number of further priority species and habitats — including the Amu Darya trout spawning migration, Eurasian Otter, and Bukhara Deer — carry a no-net-loss obligation.
EBRD	European Bank for Reconstruction and Development — the international development bank financing the Project.
ESIA	Environmental and Social Impact Assessment — a systematic study of the potential environmental and social effects of a project and the measures to manage them.
ESMP	Environmental and Social Management Plan — the operational document setting out how the ESMP commitments/mitigation measures will be implemented.
GRM	Grievance Redress Mechanism — the formal system for receiving, recording, and responding to complaints about the Project.
Hukumat	Local government authority in Tajikistan (district level).
IPAM	Independent Project Accountability Mechanism — the EBRD's independent mechanism for receiving complaints from people affected by EBRD-financed projects.
Jamoat	Local self-government unit, responsible for a smaller area than a Hukumat, covering one or more settlements.
RP	Resettlement Plan — the plan setting out how land is acquired, compensation is paid, and livelihoods are restored for affected households.
NTS	Non-Technical Summary — this document.
PIURR	Project Implementation Unit for Road Rehabilitation — the government agency responsible for implementing the Project under the Ministry of Transport.
PMB (Polymer-Modified Bitumen)	A higher-specification asphalt binder used for the wearing course, providing better resistance to heat and deformation than conventional bitumen.
SEA/SH	Sexual Exploitation and Abuse / Sexual Harassment — forms of gender-based violence that the project has a zero-tolerance policy towards.

SEP	Stakeholder Engagement Plan — the plan for communicating and consulting with all affected communities and interested parties.
Shurobdaryo	The mountain river that flows along the project corridor. Also referred to in some documents as Shurobdaryo. A key sensitive environmental receptor.
Priority Biodiversity Feature (PBF)	Under EBRD ESR6, a species, habitat, or ecological process of particular conservation significance that is at risk from project activities. Identification of a PBF triggers a no-net-loss obligation. Several PBFs were identified, including Amu darya trout spawning migration, Eurasian Otter, and Bukhara Deer.