

Supplementary Initial Environmental Examination Report

Project number: 48 401 KGZ

Loan number: ADB Loan 3730- KGZ (SF) / Grant number 0621- KGZ (SF)

Rehabilitation of additional road sections using saved funds

Corridors 1 and 3 Connector Road Project under CAREC. Additional funding.

Section Lot 1 Balykchy-Kochkor highway (km 0 + 000 - km 43 + 000), additional roads:

Kyzyl Ompol – Ak-Olon, length 12.28 km

Street in Balykchy (Entry to the Ministry of Emergency Situations), length 1.66 km

Street in Balykchy (Access to houses), length 0.44 km

Section Lot 2 “Kochkor (64 km) to Epkin (89 km), additional roads:

Tendik-Roundabout, 2.9 km long

Kochkor-Communism (section Kum-Dobo Komsomol), length 17.16 km

Kum-Dobo-Shamshy-Saralasaz with a length of 3.86 km

Communism-Ortok with a length of 0.8 km

Road in the village Cholpon with a length of 0.41 km

December 2024

Supplementary Initial Environmental Examination Report by Roughton International Ltd./RAM Engineering Associates LLC for the Ministry of Transport and Communications of the Kyrgyz Republic, 2024, in compliance with Kyrgyz Republic Environmental Legislation and ADB requirements.

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ABBREVIATIONS

| | |
|-------|--|
| USD | US Dollar |
| ADB | Asian Development Bank |
| HIV | Human Immunodeficiency Virus |
| PIU | Project Implementation Unit |
| STD | Sexually transmitted infection |
| LAR | Land Acquisition and Resettlement |
| km | kilometer |
| CSC | Construction Supervision Consultant |
| PAP | Project-Affected Person |
| VAT | Value Added Tax |
| NGO | Non-Governmental Organization |
| EIA | Environmental Impact Assessment |
| SIEE | Supplement Initial Environmental Examination |
| SSEMP | Site-Specific Environmental Management Plan |
| LARP | Land Acquisition Resettlement Plan |
| PLA | Driven Passenger car |
| RoW | Right-of-way |
| RP | Resettlement Plan |
| EMP | Environmental Management Plan |
| IEE | Initial Environmental Examination |
| SO | Social assessment |
| AIDS | Acquired Immune Deficiency Syndrome |
| TS | Technical specifications |
| TA | Technical Assistance |
| PPTA | Project Preparatory Technical Assistance |
| TEZ | Transport and operating costs |
| CAREC | Central Asia Regional Economic Cooperation |

Executive Summary.

1. With support and financing from Asian Development Bank (ADB), a project was developed and implemented to improve connecting road between CAREC corridors 1 and 3 (Balykchy – Kochkor km 0+000 – km 43+000 [Lot 1] and Kochkor – Epkin km 62+400 – km 89+500 [Lot 2]). During project implementation, cost savings were achieved, which, in agreement with ADB, were allocated for repair of additional roads. Total contract amount (Lot 1 and Lot 2) was \$40,209,854.83, including Lot 1 – \$22,671,896.26, and Lot 2 – \$17,537,958.57. As of December 2023, savings compared to projected costs reached approximately \$9.7 million.
2. Project “Capital Repair of Additional Road Sections Using Saved Funds” under CAREC Corridor 1 and 3 Connecting Road Project (Section 1 Balykchy – Kochkor km 0+000 – km 43+000 [Lot 1] and Section 2A Kochkor – Epkin km 62+400 – km 89+500 [Lot 2]) provides capital repair of eight additional road sections with total length of about 39.5 km, located near main alignment of project roads.

Three sites on Lot 1 Balykchy - Kochkor km 0 + 000 - km 43 + 000:

- Kyzyl Ompol - Ak-Olon Road (III category), adjacent to the main project road km.22+680 LHS, L = 12.285 km.
- Street in Balykchy city, entrance to LHS (IV category), adjacent to the main road km 1+720 LHS, L = 1.66 km.
- Street in Balykchy, entrance to houses (IV category), at a distance of 0.3 km to the left of the main road km 1+720 LHS, L = 0.44 km.

Five sites on Lot 2 Kochkor-Epkin, km 62+400 - km 89+500

- Tendik-Roundabout site, adjacent in a straight line from Tendik village (III category), to the beginning of the project road km.62+400, L = 2.9 km;
 - site Kum-Dobo - Komsomol (IV category), Kochkor-Komsomol road, 17.16 km long, at a distance of 0.5 km to the right of the Kochkor-Epkin project road route.
 - Kum-Dobo - Shamschy-Saralasaz road (IV category), 3.86km long, located to the right of the Kochkor-Epkin project road route.
 - Communism-Ortok road (IV category), 0.8km long, at a distance of 0.6km from the Kochkor-Epkin road to. 89+300 RHS.
 - road to Cholpon village (IV category), 0.41km long, adjacent to Kochkor-Epkin road km.81+400 RHS.
- 1) This law establishes the economic, legal foundations and principles of management of all roads in the Kyrgyz Republic. It includes the organizations and road authorities in the transport and highway sector that ensure the development, repair, and operation of roads. In addition, it defines the rights, duties and responsibilities of the owners, holders and users of roads.
 - 2) Article 3 of this law provides the following definition of the right-of-way and establishes its size depending on the category of the road:
 - Category 1 - 32 meters from the road centerline;
 - Category 2 - 16 meters from the road centerline;
 - Category 3 - 14 meters from the road centerline;
 - Category 4 - 13 meters from the road centerline;

- Category 5 - 12 meters from the road centerline;
 - Chapter 4 regulates issues of road repair and maintenance.
3. The project aims to improve socio-economic conditions, ensure road safety, and enhance accessibility of communications with minimal environmental impact. Works are planned within existing right-of-way limits without expansion, which significantly reduces potential negative impact.
 4. This Supplemental Initial Environmental Examination (SIEE) has been prepared for the project 'Rehabilitation of additional road sections using saved funds.' The SIEE supplements the IEE for CAREC Corridor 1 and 3 Connecting Road project for Balykchy-Kochkor Section 1 (Lot 1) (km 0+000 - km 43+000) and Kochkor-Epkin Section 2A (Lot 2) (km 62+400 - km 89+500). It should be read in conjunction with the IEE of the main project, as additional road sites are adjacent to main project roads.
 5. Next is a brief summary of the main EIA report, baseline environmental conditions, environmental impacts, and mitigation measures adopted.
 6. Environmental Impact Assessment (EIA) reports for Lot 1 Balykchy – Kochkor (km 0+000 – km 43+000) and Lot 2 Kochkor – Epkin (km 62+400 – km 89+500) of CAREC Corridor 1 and 3 connector road were prepared in 2018 through an update of the initial environmental assessment carried out by Kocks Consult GmbH, Finnish Overseas Consultants Ltd., and CAC Consulting. The EIAs included additional research results, noise and vibration modeling reports, archaeological survey reports, as well as the project of protection zones for historical and cultural heritage sites prepared for both lots. EIA projects underwent state environmental expertise in accordance with environmental legislation requirements.
 7. CAREC Corridor Connector Road Projects 1 and 3 (Phase 2) link two major regional CAREC corridors through rehabilitation of an existing but narrow connector road. It forms part of the North–South Alternative Corridor, a priority project under the National Sustainable Development Strategy.
 8. Section 1 (Lot 1), Balykchy – Kochkor (km 0+000 – km 43+000), has a total length of 43 km and runs from east to southwest. It begins at the traffic roundabout located at the entrance to Balykchy city, where five roads converge, one of which is part of the CAREC corridor heading south. Lot 1 follows the existing road alignment up to km 43. The first 29 km of the road are within Ton District of Issyk-Kul Region, while the remaining 14 km are within Kochkor District of Naryn Region. The road elevation is 1,632 m above sea level at km 0 and 1,756 m at km 43, with altitudes along the route varying between 1,610 m and 1,820 m.
 9. The Kochkor–Epkin road section (Lot 2) is 25 km long and runs from east to west. It begins at the intersection of three roads (km 62+400) within Kochkor, where the Bishkek–Naryn–Torugart highway serves as a bypass for Kochkor and this section. The road follows the existing highway and ends at km 89+500 in Epkin. The entire section lies within Naryn Region, crossing only Kochkor District. Kochkor serves as the administrative center of Kochkor District in Naryn Region.
 10. Project was designed in accordance with Kyrgyz Road Standard (SNiP 32-01:2004), meeting geometric and structural requirements for category II technical roads (urban arterial streets). The design speed is 120 km/h and 95 km/h outside settlements, and 60 km/h within settlements, with the following geometric parameters: 2 traffic lanes, lane width 3.5–3.75 m, carriageway width 7.0–7.5 m, shoulder width 3.25–3.75 m (0.5–0.75 m asphalted). The average total road width is 15 m. Within settlements, the road expands to 4 lanes with pedestrian sidewalks.

11. Rehabilitation works included laying new asphalt, reconstruction and construction of bridges, replacement of culverts, construction of bus stops and one underpass, removal of old asphalt, construction of sidewalks, installation of drainage channels, tree planting, as well as development of quarries, operation of asphalt and concrete plants, crushing facilities for aggregate processing, and establishment of contractor camps and storage areas.
12. Below are the baseline environmental conditions in the project area, based on studies conducted under the EIA.

Baseline Environmental Conditions in the Project Area.

| Environmental aspects | | Baseline environmental conditions | |
|-----------------------|-----------------------|--|--|
| | | Lot-1 | Lot-2 |
| Physical conditions | Landscape and terrain | <p>The section runs through mountainous and plain areas of Issyk-Kul and Naryn regions at elevations from 1,610 m to 1,820 m above sea level, crossing valleys of the Chu River.</p> <p>0 km – 0.7 km – From roundabout to the first intersection, the area is a built-up zone on outskirts of Balykchy. Terrain is flat and firm, with bushes and shrubs present.</p> <p>0.7 km – 4.0 km – Semi-arid, desert-like area with sparse shrub vegetation. Terrain is generally flat with minor elevation changes along road.</p> <p>4.0 km – 8.0 km – Low steppe hills appear on left side, while right side remains flat up to bank of Chu River.</p> <p>8.0 km – 12.0 km – Road turns south, running along right bank of Chu River. On left side, agricultural lands of Tash-Saray village are located at foot of low hills.</p> <p>14 km – 17 km – Road turns west, passing between rocky mountains composed mainly of fractured and eroded boulders. Valley is dry with sparse vegetation, mostly shrubs.</p> <p>17 km – 43 km – From sharp bend to Orto-Tokoy Reservoir, landscape is semi-arid, dominated by shrubs as main vegetation type.</p> | <p>The road section "Kochkor (km 64) – Epkin (km 89)" starts west of Kochkor village in Kochkor district. This area is part of Kochkor valley, described as a depression with elevation 1,800–2,500 m, length about 80 km and width about 20 km. General landscape can be classified as steppe with fragments of forest and meadow. Agriculture and livestock, main local activities, are widely practiced near road.</p> <p>Section from km 64 to km 92 lies within Kochkor lowland, oriented east–west. Surface is flat with slightly undulating longitudinal profile. Elevation varies from 1,856 to 2,250 m above sea level, with gradual ascent toward Kyzart pass.</p> <p>Kochkor district is dominated by large agricultural lands used for farming and animal husbandry. Valley is bounded by Kyrgyz range in north and Karagatty–Kyzart range in south. Mountain area has strongly dissected relief with steep slopes. Elevation in valley ranges from 1,700 to 2,400 m, while surrounding mountains rise from 2,400 to 4,502 m.</p> <p>Terrain is characterized as hilly and wavy, covered mainly with grass suitable for grazing. Roadside area is used as pastureland. Local vegetation is sparse, though some road sections are lined with trees, mainly poplar, elm, and white acacia.</p> |

| Environmental aspects | | Baseline environmental conditions | |
|-----------------------|--------------------------|---|---|
| | | Lot-1 | Lot-2 |
| | Geology and seismicity | <p>From km 0 to km 17, lake deposits are common, represented by gravel and sand. At the end of this section, on the right-bank terrace of Chu River, lake deposits are overlain by alluvial pebble soils with thickness over 5 m.</p> <p>Sedimentary and metamorphic rock soils are developed between km 17 and km 30.</p> <p>Embankment soils consist of pebble and gravel soils with sandy to loamy filler (15–30%) and boulder inclusions (5–30%). Embankment height varies from 0.2 to 3.0 m. Subgrade soils include crushed stone, pebble, gravel, loam, and shale.</p> <p>Project area is located within an 8-point seismic zone.</p> | <p>According to seismic zoning of the Kyrgyz Republic, project area belongs to an 8-point seismic zone in line with SNIP KR 20-02:2009.</p> |
| | Dangerous natural events | <p>Mudflow hazard: Mudflows may occur during flood periods when intensive localized precipitation takes place.</p> <p>Slope runoff: Northwest part of Balykchy and eastern part of Orto-Tokoy village, 10–14 km left side of Chu River from road. However, all these points are located far from road, about 1–5 km away.</p> | <p>Mudflow hazard: Rainfall-induced mudflows may occur in Kok-Zhar rural area, threatening houses, bridges, roads, and canals. Such mudflows may happen once every two years or less frequently over most of mountainous part of district. Likely period of occurrence is April–September, with highest probability in May–July.</p> <p>Flood hazard: Areas with high groundwater levels are concentrated in valleys of Joon-Aryk River, including Chekildek, Cholpon, and Epkin villages.</p> |
| | Climate | <p>Climate of Issyk-Kul belongs to local steppe type, described as continental with cold winters and hot summers. Annual precipitation is low, averaging 390 mm. During summer months (June–August), average high temperature near lake is about 20–25°C. In winter (December–March), temperature usually falls below zero, but lake does not freeze. Annual average temperature for road section is 5.8°C.</p> <p>Most of road section lies in Issyk-Kul region (0–29 km), with remaining part in Naryn region. Due to narrowing of Teskey Ala-Too range, majority of climatic conditions along road correspond to Issyk-Kul region.</p> | <p>Most of Naryn district is mountainous. Climate is continental, with long cold winters. Lowest absolute temperature can reach –45°C. Summer is short and cool. District contains several climatic zones: 1400–1600 m – desert and semi-desert; 1600–1800 m, 1800–2000 m – steppe; 2500–4000 m – subalpine and alpine; above 4000 m – permanent snow.</p> <p>Average January temperature is –15°C. Absolute minimum (–50°C) was recorded in Aksay valley. Areas near Chatyr-Kol lake, including Aksay, Arpa valleys and upper Naryn river basin, have cold winters and short warm summers. Temperature can change sharply during day; frost can occur even in summer. Annual</p> |

| Environmental aspects | | Baseline environmental conditions | |
|-----------------------|-------------|--|--|
| | | Lot-1 | Lot-2 |
| | | | precipitation on plains is 200–300 mm, slightly higher in mountains. Heavy rain period is late spring to early summer, accounting for 30–60% of annual precipitation. Precipitation in valleys increases from west to east. Snow cover reaches 40 cm in valleys, up to 80 cm in mountains. Strong winds make snowfalls rare and snow cover unstable in Kochkor valley. |
| | Air quality | Air basin concentrations of suspended particles, NO ₂ , CO, and SO ₂ are within local standard limits. Main pollution sources are vehicles and airborne road dust. | Air quality and noise/vibration were measured at sensitive locations (near schools, shops, and other public facilities). No major industrial sources affect air quality in the area, but vehicle-generated dust is a pollution source. Concentrations of suspended particles, NO ₂ , CO, and SO ₂ remain within local standard limits. |
| | Noise | At outskirts of Balykchy, existing traffic levels near houses along road are below IFC guideline limits for daytime and within Kyrgyzstan's permissible exposure levels. | Baseline noise levels from traffic and construction did not exceed permissible exposure limits of local standards. |
| | Vibration | Baseline vibration measurements were conducted and potential damage from high-vibration rollers was predicted for 19 structures (residential houses, offices, industrial facilities, a mosque, a shop) at various distances from road. About 4 structures may experience cosmetic damage, and 7 houses may receive minor structural damage due to use of high-vibration rollers. Operational vibration forecast: no vibration damage is expected from passing vehicles. During construction, no adverse vibration effects from machinery were observed on structures along project road. | Baseline measurements of traffic-induced vibration were conducted. Maximum permissible vibration levels for humans from traffic remained within established standards. |
| | Hydrology | There are three main water bodies related to road section – Issyk-Kul Lake, Chu River, and Orto-Tokoy Reservoir. No major rivers cross road in this section; however, road approaches Chu River very closely in some areas. At beginning of section in Balykchy, distance between road and waterline of Issyk-Kul Lake is about 2.5–3.0 km. | Road section Kochkor (64 km) to Epkin (89 km) crosses following rivers: Joon-Aryk, Mukandyn-Suusu, Sazdyn-Suusu, and Jar-Korundu. |

| Environmental aspects | | Baseline environmental conditions | |
|-----------------------|---------------|--|---|
| | | Lot-1 | Lot-2 |
| | Water quality | Rivers. Overall, the water quality in Chu River is considered good, as most of the analyzed water quality parameters were within national standards of Kyrgyzstan. | Rivers: Joon-Aryk, Mukandyn-Suusuu, Sazdyn-Suusuu, Jar-Korundu. According to monitoring data, water quality is rated as good and meets established maximum allowable concentrations for monitored parameters. Exceptions occur during flood periods, which affect turbidity and suspended solids content. |
| Biological resources | Biodiversity | Project road, as well as current road section, partially passes through Issyk-Kul biosphere territory, defined by four zones: core zone, buffer zone, transition zone, and rehabilitation (sanitation) zone. Balykchy city is in sanitation zone; therefore, start of rehabilitated road (0 km, Balykchy) and route is considered part of Rehabilitation (sanitation) zone. | Territory of road section Kochkor (64 km) to Epkin (89 km) is on arable irrigated land formerly steppe and desert. According to geobotanical classification, it belongs to Inner Tien Shan province. Vegetation types: desert with hawthorn, cushion plants; turf-covered steppe; tall meadows; cryophilic cushion plants; marshes; spruce forests; broadleaf forests with deciduous shrubs; juniper forests. Large areas are covered by plant communities with sparse vegetation. Vegetation belt type is desert steppe with forest and meadow fragments. |
| | Flora | Vegetation up to foothills at 1630–1850 m is in lowland-foothill desert zone, represented by mountain-valley, light-brown, and light-chestnut soils, with wormwood-grass vegetation. At 1850–2100 m, there is foothill-mid-mountain steppe zone with mountain chestnut soils and chernozems, dry grass-wormwood steppes, and high-grass meadow steppes. Sparse wormwood-saltwort–fescue vegetation occurs. Only near mountain valley outlets on alluvial cones, moistened by streams, are meadows and occasionally crops found. Soils are mostly poor brown soils, less frequently sierozems. Herbaceous plants include feather grasses (<i>Stipa</i>), fescue, <i>Koeleria</i> , astragals (<i>Astragalus</i>), and semi-shrubs of wormwood, <i>Krascheninnikovia ceratoides</i> , tansy (<i>Tanacetum</i>), and spiny <i>Caragana</i> (<i>Caragana spinosa</i>). | Main plant species: <i>Sympegma regeli</i> , <i>Salix acutifolia</i> , <i>Hippophae rhamnoides</i> , <i>Geranium regelii</i> , <i>Geranium himalayense</i> , <i>Kalidium cuspidatum</i> , <i>Reaumuria soongorica</i> , <i>Acantholimon alatavicum</i> , <i>Artemisia tianschanica</i> , <i>Stipa caucasica</i> , <i>Festuca sulcata</i> , <i>Phlomis oreophila</i> , <i>Carex stenocarpa</i> . Medicinal plants include Begger rose, loose rose, and Ural licorice. |
| | Fauna | Biodiversity in this area is represented by various ecosystem types. Main ecosystem types and species: desert and semi-desert. Desert areas are inhabited by jerboas and sand gerbils. In settlements, house sparrows, lighter Spanish sparrows, and turtle doves are common. Near villages, rooks, starlings, and hoopoes can be found. | Territory of project road is desert and semi-desert. According to geographic zoning, it belongs to inner Tien Shan mid-mountain region. Characteristic species of area: Reptiles: desert monitor lizard, lacertids, whip snake, common agama; Birds: little owl, Mongolian finch, lesser lark, skylark, rock thrush, black redstart, rock nuthatch, desert Mongolian bunting, |

| Environmental aspects | | Baseline environmental conditions | |
|--|---------------------------------------|---|--|
| | | Lot-1 | Lot-2 |
| | | In foothills, voles, Central Asian tolai hare, and gray hamster occur. Submontane steppes are home to birds such as white-throated rock-thrush, black redstart, Buchenan's bunting, and Egyptian vulture. | <p>ruddy shelduck (near water bodies), bearded partridge, chukar (in open habitats), common turtle dove; black-bellied sandgrouse occurs during migration;</p> <p>Mammals: greater horseshoe bat, long-eared bat, tolai hare, gerbils, steppe polecat, stone marten, gray marmot, muskrat (near water bodies).</p> |
| Social, cultural, and economic resources | Population and demographics | <p>Settlements along project road: Balykchy city (km 00+000) – start of road section, high population density nearby (industrial zone).</p> <p>Tash-Saray village (km 11+000) – residential houses close to road (nearest house 10–11 m from road edge).</p> <p>Balykchy city, regional center, covers 38 km² with permanent population of 45.1 thousand (Balykchy 44.6 thousand, Orto-Tokoy urban-type settlement 0.5 thousand). Average population density in area is 7.8 people per km².</p> | <p>Section “Kochkor (64 km) to Epkin (89 km)” of project road passes mainly through several villages in Kochkor district: Kok-Zhar, Chekildek, Epkin. These villages have basic social infrastructure, including drinking water and electricity. Local residents use charcoal and firewood for heating. Irrigation water is supplied via canals from nearby river. All villages have schools; kindergartens are present only in larger villages.</p> <p>Each village has a feldsher-obstetric point, while larger villages have hospitals. Transport infrastructure mainly consists of asphalt roads (cold asphalt) and dirt roads. Majority of population is engaged in farming and livestock. Main products include wheat, potatoes, barley, meat, milk, wool, and eggs.</p> |
| | Cultural and archaeological resources | There are five (5) complexes of historical and cultural heritage sites located within 50 meters of the road: Sary-Bulun North 2, Sary-Bulun South 1, Orto-Tokoy 2, Orto-Tokoy 3, gumbes, and cemeteries from the ethnographic period. | On this section, significant archaeological sites include eight features, apparently stone-and-earth mounds from early nomadic period, made of small gravel with heights from 0.2 to 0.7 meters and diameters from 4 to 11 meters. These artifacts are located approximately 15–100 meters from road: Chekildek Cemetery 1, Chekildek Kurgan 2, Chekildek Kurgan 3, Chekildek Kurgan 4, five kurgans of Saka royal-type cemetery Buguchu 1, Cholpon Kurgan, Cholpon Cemetery 2. |

Alternative analysis.

13. Two alternatives were considered in the EIA project: 1) Zero option – "No action"/alternative of no activity, and 2) Reconstruction project.

Zero option – “No action” / alternative of no activity.

14. According to ADB SPS 2009, the "Zero option" is considered, assuming development without project implementation. Comparative analysis of this option allows assessing need for project or forming view on feasibility of full implementation.
15. **Air quality.** Existing road surface does not meet requirements of II-category road. Cold asphalt pavement is missing in some sections. Due to uneven road, vehicle engines operate irregularly, emitting large amounts of exhaust gases. In gravel-covered sections, dust formation increases, also affecting air quality.
16. **Noise and vibration.** Noise and vibration are main source of public concern today. Lack of proper road surface spreads sound waves over long distances, creating high noise and vibration impact on population day and night. Most sensitive recipients include hospitals, schools, kindergartens, and other private facilities.
17. **Surface waters.** At road crossings with canals and bridges, structures are damaged and banks show erosion. In case of emergency damage to culverts, water bodies may be polluted by runoff of oil products, oils, and road debris.
18. **Soil.** Impact on soil is expressed in disruption of soil cover due to road surface damage and vehicles leaving right-of-way onto adjacent areas. Erosion processes are aggravated by concentration of flows through artificial structures. Soil is also exposed to pollution from fuels, oils, and waste.
19. **Flora and fauna.** Impact on flora and fauna will be minor, as road exists for a long time and already experiences anthropogenic influence.
20. **Protected areas and social issues.** Economic relocation and displacement are not applicable. Social aspect includes disruption of local transport routes, increased travel time to workplaces and leisure areas, poor conditions for agricultural machinery, animal-drawn transport, cyclists, and livestock driving. Creates higher accident risk on road and at intersections, vibration of buildings from moving vehicles, dust, and air pollution.
21. **Safety.** Lack of necessary signs, markers, and road markings creates conditions for accidents and traffic incidents. Speeding increases likelihood of collisions with people and animals.
22. Implementation of "Zero option" maintains existing problems: high noise and vibration levels, lack of proper road surface, negative social consequences, and limited potential for regional economic development.

Road reconstruction alternative.

23. At preparatory stage, road reconstruction will not cause environmental or social impact. Work at this stage involves design and planning, informing population and other stakeholders about upcoming activities.
24. During construction, sources of air pollution include vehicles, road machinery, soil and construction material handling, and operation of asphalt plants. Main pollutants are exhaust gases and construction dust.
25. Impact on surface water results from construction machinery and placement of construction camps, which may lead to water contamination with fuel, oil products, soil, and household waste.

26. Construction leads to removal of topsoil, land diversion, and potential soil pollution from fuel and waste, as well as disruption of soil structure if misused or improperly stored.
27. Physical impact during construction may negatively affect cultural heritage sites located within 50 m of road.
28. During operation, main effects will be on air quality, noise, and vibration, especially in residential and industrial areas.
29. Since reconstruction follows existing route, which already forms anthropogenic ecosystem, minimal environmental impact is expected, alongside positive social effects.

Expected environmental impacts and mitigation measures.

30. Main impacts are associated with construction phase, while some impacts will occur during operation.
31. Impacts during construction include:(i) noise, air pollutant emissions, and vibration, especially important near settlements along project road and near sensitive receptors such as schools, hospitals, mosques, households near road or quarry, and markets;(ii) impacts on streams and rivers; (iii) impacts on historical and archaeological sites;(iv) impacts from quarrying for aggregates;(v) impacts on soil and vegetation, including trees near project road, due to site clearing;(vi) impacts from rehabilitation of bridges and drainage structures;(vii) impacts from asphalt plants and aggregate crushing facilities;(viii) impacts from contractor camps.
32. Impacts during operation relate to increased traffic volume and speed, leading to higher gaseous emissions and noise, as well as potential rise in road accidents or spills of hazardous substances.
33. To mitigate environmental impacts of project implementation, an Environmental Management Plan for specific sections and facilities for both lots (SSEMP) was developed. Review and approval of SSEMP were completed in 2020. Ministry of Transport and Communications of KR approved SSEMP for Lot 1 in October 2020 and for Lot 2 in November 2020. SSEMP is effective and describes measures to prevent, minimize, and compensate negative project impacts during construction and operation. It includes contractor obligations, supervision by CSC and PIU, and regular environmental monitoring. Each SSEMP contains annexes with specific plans for:
 - environmental management
 - environmental monitoring
 - emergency management
 - construction noise control
 - surface water pollution prevention
 - soil management
 - liquid and solid waste disposal
 - tree management
 - dust suppression
 - construction site and camp management
 - material, equipment, and storage management
 - occupational health, safety, and hygiene
 - quarry management
 - COVID-19 response, prevention, and mitigation

34. Implementation of SSEMP mitigation measures, along with results of instrumental monitoring of environmental components at all construction stages, confirmed reduction of dust/particulate matter, NO₂, and SO₂ concentrations in air along project roads after construction completion.

Disclosure, consultation, and participation.

35. In March 2016, public consultations on environmental issues related to project sections of Lot 1 and Lot 2 were held as part of EIA preparation. Procedure followed requirements of ADB Public Communications Policy (2005) and SPS (2009). Process was organized by IPIG/MoTR, which sent official notices to local leaders asking them to invite stakeholders from nearby communities.

36. During consultations, consultant (Kocks Consult, GmbH) presented PowerPoint on technical aspects of project and explained potential environmental and social impacts, including mitigation measures. IPIG/MoTR representatives attended, answered participants' questions, and provided necessary clarifications. Participants received forms for written questions and comments. Printed materials were prepared and distributed to inform broader public about key environmental issues.

Grievance redress mechanism (GRM).

37. GRM is a process through which affected people have a reliable way to voice and resolve concerns about project, and project has effective method to address issues of affected people. GRM will be implemented in this project, ensuring affected people are fully informed of their rights and grievance procedures, either orally or in writing, during consultations, surveys, compensation, and project implementation. Measures will always be taken to prevent dissatisfaction and avoid long compensation procedures.

38. GRM will cover social, environmental, and other safety-related issues in accordance with ADB Safeguard Policy and legislation of Kyrgyz Republic.

39. To register and resolve complaints from local population, a two-tier GRM has been established:

Local level – complaint is submitted to village community and reviewed by grievance review group (GRG) with participation of local authorities, DEP, ombudsman, and affected persons.

Central level – if complaint is not resolved locally, it is escalated to central office of MOTC for reconsideration. GRG consists of representatives from various agencies and local community, keeping records, preparing reports, and ensuring fair resolution. Process includes negotiations, official hearings, and option to go to court if necessary.

40. According to ADB's Safeguard Policy Statement, the CAREC Corridor 1 and 3 Connecting Road Improvement Project is categorized as Category B. This Supplemental Environmental Assessment (SIEE) Report for major rehabilitation sites supplements it, considering the main project and new road sites identified for rehabilitation. The proposed project will improve the socio-economic level of the population and access to communications. In accordance with Kyrgyz Republic legislation and ADB's Safeguard Policy Statement, the IEE of the Additional Roads Rehabilitation Project has been carried out in a reduced scope, and no State Environmental Expertise (SEE) is provided.

41. This SIEE includes information on relevant legislation and the project area. It provides a detailed description of the proposed project and the current state of the environment in the vicinity. The report identifies environmentally sensitive receptors, analyzes project impacts from their perspective,

identifies mitigation measures to reduce impacts to an acceptable minimum, and prepares a Specific Environmental Management Plan (SEMP).

42. Project impacts are expected to be limited in intensity and spatial extent, as major maintenance of additional roads will be carried out within the existing roadbed. Most impacts are limited to the construction phase due to potential increases in dust, gas emissions, and noise. There is also a risk of emergency incidents from potential spills of hazardous substances. Identified impacts include: (i) noise, air emissions, and vibration, particularly near settlements and sensitive receptors such as schools, cemeteries, and mosques; (ii) impacts on watercourses; (iii) impacts on soil and vegetation, including tree plantations near the additional roads, due to site clearance works; (iv) impacts from the rehabilitation of drainage structures. Impacts are categorized into design phase, construction phase, and operational phase impacts.
43. Mitigation measures for all impacts have been developed and incorporated into the Site-specific Environmental Management Plan (SEMP). Prior to commencing work, Contractor will provide Engineer with information on: (i) dust management; (ii) disposal of waste and unsuitable soil; (iii) instructions for temporary placement of machinery and equipment; and (iv) procedures for works on man-made structures.

I. INTRODUCTION.

General information.

44. SIEE for 'Additional Roads Rehabilitation' Project was conducted because new additional roads are adjacent to main project roads Lot 1 Balykchy-Kochkor (km 0+000 - km 43+000) and Lot 2 Kochkor-Epkin (km 62+400 - km 89+500) of CAREC Corridor 1 and 3 Connecting Road. SIEE was developed by Consultant, agreed by KR MOTC, and reviewed by ADB.
45. According to Resolution of Cabinet of Ministers of KR 'Regulations on issuance of documents for design, construction and other changes of real estate objects and conformity assessment of commissioned completed construction objects in Kyrgyz Republic' (#240 dated 10 May 2024), State Expertise of developed detailed design for capital repair of eight sites of additional roads is not required. Consequently, absence of need for State Technical Expertise of detailed design project excludes need to conduct State Environmental Expertise.
46. The following provides general information on Kyrgyz Republic, Project, and environment within Project Area.
47. Since Kyrgyzstan is a mountainous, landlocked country, regional commerce depends heavily on road transport. As mentioned in Country Partnership Strategy with ADB, road infrastructure has been routinely affected by climate-induced extreme events, including landslides and mudslides. Further investment is needed for rehabilitation and maintenance of road infrastructure. Government of Kyrgyz Republic requested Asian Development Bank (ADB) assistance in financing rehabilitation of CAREC Corridor 1 and 3 Connecting Road sites: Section 1 Balykchy-Kochkor (km 0+000 - km 43+000) and Section 2A Kochkor-Epkin (km 62+400 - km 89+500) (Figure 1).
48. Section 1 (Lot 1). Road project runs from Balykchy (km 0) to Kochkor (km 43) and is an east-west road site (Figure 1). Route follows existing alignment, covering first 29 km within Issyk-Kul region, then next 14 km within Kochkor district of Naryn region to traffic police post (km 43).

49. Section 2A (Lot 2), running from Kochkor (km 62.4) to Epkin (km 89.5), is a 27-kilometer site continuing in an east-west direction (Figure 1). Located entirely in Naryn region, this site crosses only Kochkor district, playing a crucial role in improving regional logistics.
50. Ministry of Transport and Communications of Kyrgyz Republic (MOTC) is executing agency, Project Implementation Unit (PIU) is implementing agency, supervisory consultant is Roughton International Ltd., and Contractor is JV Sinohydro Corporation Ltd.

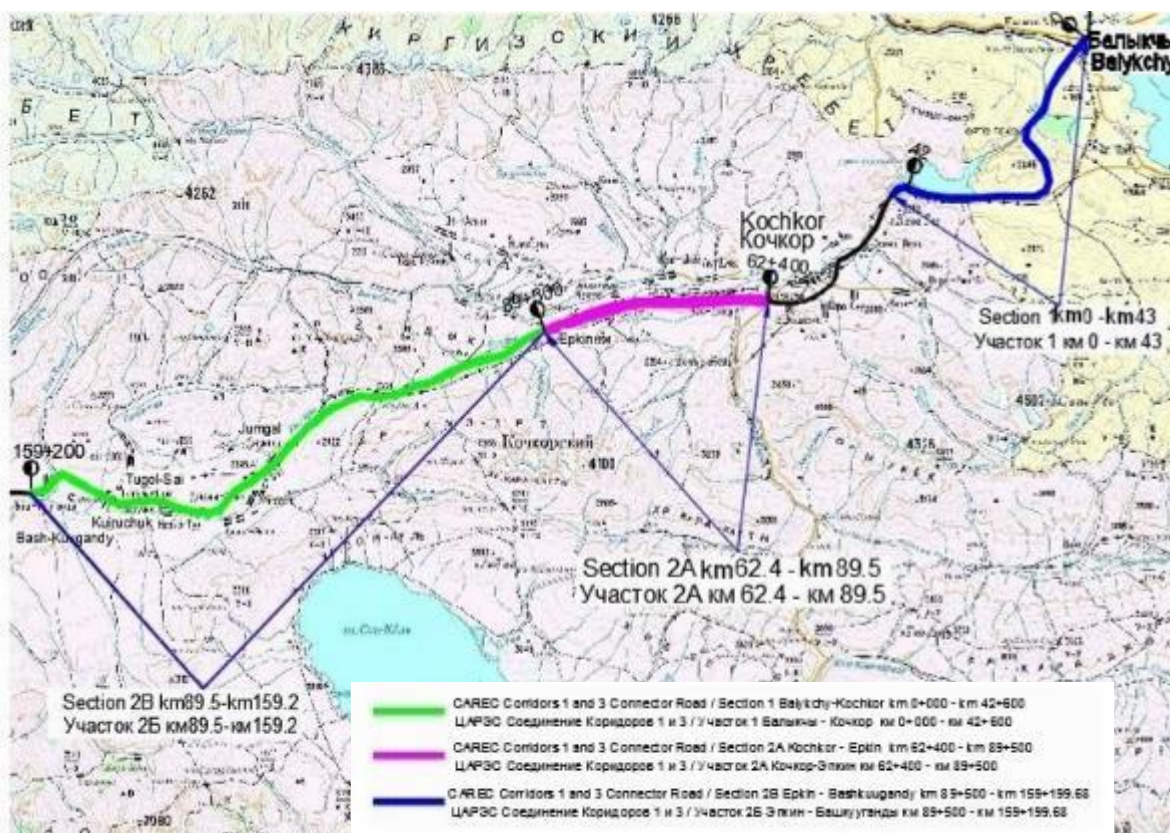


Figure 1. Map of the Balykchy-Kochkor (km.0-km.43) and Kochkor-Epkin (km.62+400 - km.89+500) roads.

51. Under current project, construction work Lot 1 and 2 sites started 22 June 2020 and completed 30 November 2023. Remaining 7% of work marks beginning of defective period.
52. Total contract amount (Lot 1 and Lot 2): \$40,209,854.83, with Lot 1 being \$22,671,896.26 and Lot 2 being \$17,537,958.57. Over the course of project implementation, savings over project costs have reached approximately \$9.7 million as of December 2023.
53. Balykchy-Kochkor (km 0+000 - km 43+000) and Kochkor-Epkin (km 62+400 - km 89+500) project sites connect southern cities Osh, Batken, and Jalal-Abad with northern cities Issyk-Kul and Naryn, forming North-South corridor. Positive infrastructure development effects led local residents near project road to request repairs for additional roads leading to their settlements.
54. In coordination with ADB, it was decided to use project savings for major rehabilitation of eight

additional road sites. These sites were identified by agreement of local self-government bodies and MOTC KR:

For Lot 1. Balykchy - Kochkor km 0 + 000 - km 43 + 000 (Figure 2):

- Kyzyl Ompol - Ak-Olon Road, adjacent to the main project road Balykchy-Kochkor, chainage 22+680 LHS.
- Street in Balykchy, entrance to MES, adjacent to the main road Balykchy-Kochkor, chainage 1+720 LHS
- Street in Balykchy, entrance to houses, 0.3 km to the left of the main road Balykchy-Kochkor, chainage 1+720 LHS.

On Lot 2. Kochkor-Epkin, km 62+400 - km 89+500 (Figure 3):

- Tendik-Roundabout site, in a straight line from outskirts of Tendik village chainage 59+500, is adjacent to beginning of main project road Kochkor-Epkin chainage 62+400.
- Kum-Dobo - Komsomol site of Kochkor-Kommunizm road, 17.16 km long, 0.5 km to right of Kochkor-Epkin project road alignment.
- Kum-Dobo - Shamshy-Saralasaz road, 3.86 km long, located RHS of Kochkor-Epkin project road alignment.
- Communism-Ortok road, 0.8 km long, 0.6 km from Kochkor-Epkin road chainage 89+300 RHS.
- 0.41 km access road to Cholpon village is adjacent to Kochkor-Epkin road chainage 81+400 RHS.

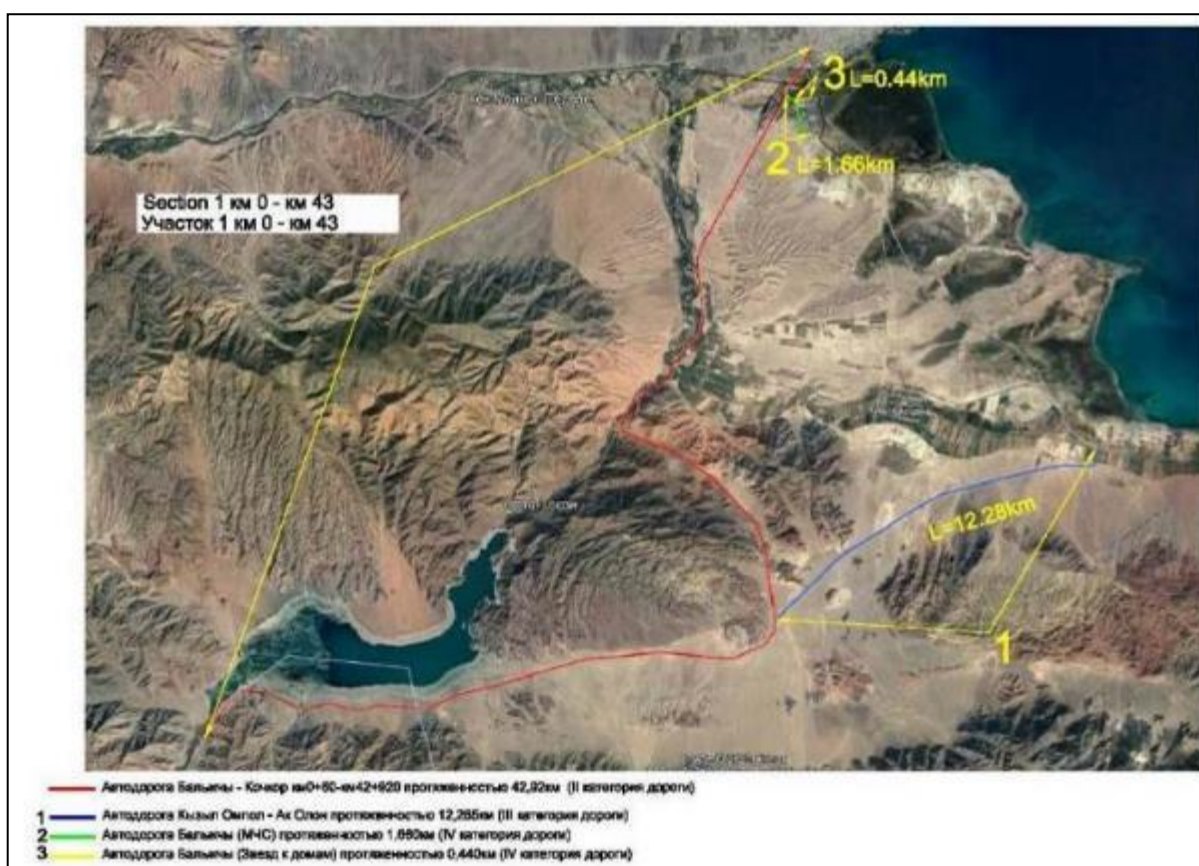


Figure 2. Map of additional roads on the Balykchy-Kochkor site (km 00+00 - km 43+00).

55. Total length of Project roads is 39.51 kilometers. Detailed description of Project sites for additional roads is provided in Section Description of Additional Road Sections
56. Rehabilitation of these roads will improve socio-economic level of population, ensure safety of road users, and relieve pressure on main road, as all internal transport connections will be carried out on internal roads.
57. Environmental impacts will arise from additional road improvements; however, these impacts will be temporary and occur during construction activities at site, as most construction is planned along existing RoW. Impacts will include, but are not limited to:
 - (i) noise impacts, air pollutant emissions, and vibration, which are of particular importance within settlements in the vicinity of the road in question;
 - (ii) impact on culverts (drainage culverts running along the road);
 - (iii)** impacts on soil and vegetation, including tree plantations near Project Road due to site clearance activities;
58. In addition, impacts have been categorized into the following groups: impacts during design phase, impacts during construction phase, and impacts during operation phase. Detailed description of impacts is provided in section 'Environmental Impact Classification and Mitigation Measures' as well as in Environmental Management Plan (EMP).
59. Field surveys to investigate environmental conditions of additional roads' rehabilitation efficient savings were carried out in 2023. Survey included desktop research of legal and regulatory framework, project description, and environmental baseline data. Comprehensive site visits for data collection and laboratory and instrumental quality studies of environmental parameters were carried out in autumn 2023 and spring, summer 2024. Based on field observations and studies, environmental impacts were identified and appropriate mitigation measures were prepared.
60. Because Project involves rehabilitation of existing road, and given absence of protected areas within Project footprint, resulting environmental impacts are largely confined to construction phase. Based on findings and further field inspections, a SIEE has been prepared in accordance with Kyrgyz Republic legislation and ADB's SPS
61. In 2024, sensitive recipients of impacts located along the road sites were identified and baseline measurements were taken.

II. POLITICAL, LEGAL AND ADMINISTRATIVE FRAMEWORKS.

1. Environmental legislation of the Kyrgyz Republic.

62. Environmental impacts of Additional Roads Rehabilitation Project are regulated by several Kyrgyz Republic environmental legislation, as shown in Table 1.
63. Repair works will be carried out on existing roads in their RoW, outside settlement boundaries. Land withdrawal and transformation are not included in Project.

Table 1. National Environmental Legislation Applicable to the Project.

| N | Legislation | Number & Year of adoption | Purpose/content |
|--|---|--|---|
| Main laws on environmental protection | | | |
| 1 | The Constitution of the Kyrgyz Republic | May 5, 2021. | Land, its mineral resources, airspace, waters, forests, flora, fauna, and other natural resources are used, but are under protection. Everyone is obliged to care for environment, flora, and fauna of country. |
| 2 | Law of KR "On Environmental Protection" | No. 53 of 1999, as edited on 13.06.2024. | " Establishes basic principles of environmental protection and provides legal authority to set environmental quality, monitoring, and control systems. Among environmental quality standards and norms authorized under this law are the following relevant to project: <ul style="list-style-type: none"> • norms of maximum safe concentration of hazardous substances in air, water; • natural resource use standards; • standards for maximum safe levels of noise, vibration and other hazardous physical effects This law establishes requirements for environmental assessment to prevent possible harmful environmental impacts. It prohibits financing or implementation of projects related to use of natural resources without obtaining positive opinion of State Environmental Expertise. |
| 3 | Law of KR "On Environmental Impact Assessment" | No. 54, of 1999, as edited on 04.05.2015. | Main law related to environmental assessment aims to prevent negative impacts on human health and environment from economic or other activities, ensuring compliance with country's environmental requirements. |
| 4 | Regulation on procedure for conducting environmental impact assessment in the Kyrgyz Republic | No. 60 02/13/2015 | Establishes procedure for assessing environmental impact of proposed activity (hereinafter IEE). Purpose of IEE is to prevent and/or mitigate environmental impacts of proposed activity and other related social, economic, and other consequences. List of economic activities subject to environmental impact assessment: major repair is not included. |
| 5 | Law of KR "General technical rules and regulations for environmental safety in Kyrgyz Republic" | No. 151 of 8 May 2009 as edited on 08.07.2019. | " Applied for environmental protection purposes, defines main provisions of technical regulation in environmental safety, and establishes general requirements for ensuring environmental safety in design and implementation of activities at economic and other activity sites for production, storage, transportation, and disposal processes. List of economic activities subject to mandatory environmental impact assessment includes: major repair is not included |

| | | | |
|--|---|--|--|
| 6 | Law of KR "On Protection of Atmospheric Air" | No. 51 of June 12, 1999, as edited on June 14, 2024. | Governs the relations on use and protection of atmospheric air. |
| 7 | Law of KR "On Production and Consumption Waste" | No. 181 of 15 August 2023. | Defines national policy in production and consumption waste management. Aims to prevent negative impacts from production and consumption waste on environment and human health while handling it, and their maximum involvement in economy as additional raw material source. |
| 10 | Law of KR "On Protection and Use of Flora" | No. 53 of 20 June 2001, as edited on 23 March 2020. | Establishes legal framework for effective protection, rational use, and reproduction of flora resources. |
| 11 | Law of KR "On Wildlife" | No. 59 of 1999 as edited on 23.03.2020. | Establishes legal relations in the field of protection, use and reproduction of fauna objects. |
| 12 | Law of the Kyrgyz Republic 'On Local State Administration and Local Self-Government Authorities' | No. 123 of 2021 as edited on 30.09.2024. | Establishes principles for setting up local authorities at level of administrative and territorial units of Kyrgyz Republic. |
| 13 | Law on the Right to Access to Information | No. 217 of 29.12. 2023.. | Present law regulates ensuring realization and protection of right of everyone to access information held by holders of information and achieving maximum information openness, publicity, and transparency in their activities. |
| 14 | Decrees of the Cabinet of Ministers of the Kyrgyz Republic 'Regulations on Issuance of Documents for Design, Construction and Other Changes of Real Estate Objects and Assessment of Compliance of Completed Construction Objects Put into Operation in the Kyrgyz Republic'. | No. 240 of 10 May 2024. | This decree regulates requirements for types of work that do not require state expert examination of design and estimate documentation when preparing detailed project. List of types of works that do not require State Expertise conclusion includes major. |
| Legislation on Land Acquisition | | | |
| 15 | The Constitution of the Kyrgyz Republic | May 5, 2021. | Article 15 recognizes diversity of ownership forms and guarantees equal legal protection for private, state, municipal, and other ownership forms (Article 15, paragraph 1). Land may be privately, municipally, or otherwise owned, except for pastures, which cannot be privately owned (Article 16, paragraph 1). Property is inviolable. No one may be arbitrarily deprived of property. State may withdraw property against owner's will only by court decision (art. 15, para. 2). Seizure of property for public needs defined by law may be made by court decision with fair and prior compensation for property value and other losses caused by alienation (art. 15, para. 2). |
| 16 | Civil Code | No. 16 of May 8, 1996, as edited on July 29, 2024. | Determines that a person whose right has been violated may demand full compensation for the losses caused to him, unless otherwise provided by law or a contract corresponding to the law (Article 14, paragraph 1). The Civil Code defines the following damages that are subject to compensation: |

| | | | |
|--|---|---|--|
| | | | <p>-expenses that the person whose right has been violated has made or will have to make to restore the violated right (Article 14, paragraph 2);</p> <p>-loss of or damage to property (Article 14, paragraph 2);</p> <p>-unearned income which that person would have received under normal conditions of civil turnover if his or her right had not been violated (loss of profit) (Article 14, paragraph 2);</p> <p>-compensation for lost profits, along with other expenses, at least in the amount of this income to the person who loses land, assets or livelihood.</p> |
| 17 | Land Code | № 45 of June 2, 1999, as edited on July 29, 2024. | <p>Governs land relations in the Kyrgyz Republic, basis for the origin, procedure for exercise and termination of rights to land and their registration, and also aimed to create land and market relations in state, communal and private ownership of land and efficient use and protection of land. The Land Code is the main document, which regulates land use.</p> |
| 18 | Law "On Highways" | №104 of 22 May 2023. | <p>-(Article 10), public highways are in state ownership, are not subject to sale and cannot be transferred to private ownership.</p> <p>-(Article 17 p.8) Placement of service objects on the right-of-way and roadside strip is realized on condition of preventing the reduction of transportation and operational qualities of roads, compliance with the requirements of vehicle traffic safety and environmental protection.</p> <p>The procedure and conditions for leasing lands of public highways shall be determined by the Cabinet of Ministers of the Kyrgyz Republic.</p> <p>- (Article 17. paragraphs 9 and 10) Any structures, facilities and premises erected on the right-of-way of motor roads in violation of the established procedure for the use of these lands shall be recognized as illegal and shall be subject to demolition by the owners of motor roads in accordance with the procedure established by the civil legislation of the Kyrgyz Republic, at the expense of the persons who carried out the unauthorized construction.</p> <p>10. Unauthorized use of the lands of motor roads shall be terminated without reimbursement of production costs incurred during the period of illegal use of these lands.</p> |
| Law on Protection and Use of Historical and Cultural Heritage | | | |
| 19 | The Law "On protection and use of historical and cultural heritage" | No.91 dtd. 07/26/1999 | <p>Establishes legal norms for protection and use of tangible historical and cultural heritage in Kyrgyz Republic, which is of unique value for people. Law is mandatory for all legal entities and individuals. It defines their rights and obligations in context of protection and use of tangible historical and cultural heritage. Historical and cultural heritage includes monuments associated with historical events in people's lives, development of society and state, and material and spiritual creative works representing historical, scientific, artistic, or other value.</p> |

International Conventions and Agreements

| | | | |
|---|---|--------|---|
| 1 | UN Framework Convention on Climate Change | 2000 g | Aimed at dealing with global climate change and its impacts. |
| 2 | The UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus). | 2001 | Aims to support protection of human rights to favorable environment for health and well-being, access to information, public participation in decision-making, and access to justice in environmental issues. |

64. Ratification of international legal acts involves implementing international requirements into national legislation and harmonizing Kyrgyz legislation with international standards. However, this process is slow in Kyrgyzstan, as conventions are frameworks needing translation into national laws, which is time-consuming and complex.

2. Required ADB Environmental Approval.

65. According to the classification of the ADB Safeguard Policy Statement (2009), the project belongs to Category B and does not require a full Environmental Impact Assessment (EIA). As part of ADB policy, it is necessary to prepare an Initial Environmental Examination (IEE). The project categorization, according to the legislation of the Kyrgyz Republic, is not carried out, however, these documents of the IEE can be considered as a full-fledged document reflecting all the necessary measures aimed at minimizing the impact on the environment due to construction work. According to the Resolution of the Cabinet of Ministers of the Kyrgyz Republic "Regulations on procedure for issue of documents for designing, construction and other changes of real estate objects and assessment of conformity put into operation completed by construction of facilities in the Kyrgyz Republic" (No. 240 dated May 10, 2024), the State Technical Expertise of the detailed project is not required for the planned repairment work of 4 road sections, which in turn, eliminates the need for a State Environmental Expertise.

Projects are assigned one of the following four environmental categories:¹

- Category A: Projects that are likely to have a significant adverse impact on the environment. In order to take measures to reduce significant impacts, it is necessary to conduct an environmental impact assessment and a simplified EIA.
- Category B: Projects that may have some negative impact on the environment but to a lesser extent and/or significance compared to projects of category A. In order to determine the likelihood of a significant negative impact on the environment, which will serve as the basis for the EIA, it is necessary to carry out a preliminary environmental assessment and a simplified IEE. If the EIA is not needed, the IEE is considered the final environmental examination report.
- Category C: Projects with a low probability of having a negative impact on the environment. EIA and IEE are not required but environmental impacts are also being analyzed.
- Category FI: Projects belong to the FI category if they provide a credit line through a financial intermediary or through an investment in the equity of a financial intermediary. The financial intermediary should apply an environmental management system if all subprojects do not entail a minor impact.

¹ADB. 2003. *Environmental Assessment Guidelines*, Manila.

- *Site-specific Environmental Management Plan:* A Site-Specific Environmental Management Plan (SSEMP) shall be prepared, which addresses the potential impacts and risks identified by the environmental assessment. The level of detail and complexity of the SSEMP and the priority of specific measures and actions will be commensurate with the impacts and risks of the project.
- *Public Disclosure:* ADB will post the following safeguard documents on its website to enable affected persons, other interested parties, and the general public to provide meaningful contribution into the design and implementation of the project.

66. The SIEE report will not be submitted to the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic for the State Environmental Expertise, since it was developed on the basis of a detailed project providing for road repairment of existing roads². However, the developed SIEE is a Supplementary to the IEE of the main project, it shall be considered together with the IEE of the main project.
67. In July 2024, public hearings were held in Balykchy, Kochkor, Cholpon, Kum-Dobo, and Mantysh with participation of PIU MOTC representatives, contractors, consultants, and local residents. Discussions covered rehabilitation projects of eight additional road sections, measures to mitigate environmental and social impacts, grievance redress procedure, and safety issues. Local residents expressed support for project and wished for early start of works. All questions from residents and stakeholders were answered and clarified. Minutes and lists of participants are attached to report (Appendix 2).

3. Permitting Processes in Kyrgyz Republic.

68. Assessment of possible effects of economic and other activities on environment and human health, and development of measures to prevent adverse effects (destruction, degradation, damage, and depletion of natural ecological systems and resources), and improve environment are carried out within framework of environmental impact assessment provided by Kyrgyz Republic environmental legislation
69. Environmental impact assessment is carried out according to the:
- Regulations on the procedure for environmental impact assessment in the Kyrgyz Republic (13 February 2015, #60);
 - Regulations on the procedure of the state ecological examination in the Kyrgyz Republic (7 May 2014, #248);
 - Law "On Ecological Expertise" No.54. 1999, (with amendments as of 04 May 2015),
 - Law "On Environmental Protection" No.53. 1999.(as amended on 06/14/2024);
 - Law "General technical regulation on environmental safety."No.151. 2009. (as amended on 08.07.2019)
70. Environmental impact assessment in Kyrgyzstan is based on two subsystems:
- (i) IEE (Abbreviation 'Environmental Impact Assessment'), and
 - (ii) Environmental Expertise (State Environmental Expertise, SEE).

² Resolution of the Cabinet of Ministers of the Kyrgyz Republic On Amendments to the Resolution of the Cabinet of Ministers of the Kyrgyz Republic "On Approval of the Regulation on procedure for issue of documents for designing, construction and other changes of real estate objects and assessment of conformity put into operation completed by construction of facilities in the Kyrgyz Republic" No. 240 dated May 10, 2024.

Based on the 'list', the project is screened to determine whether or not the project is subject to environmental assessment.

71. IEE is conducted for activities subject to mandatory State Environmental Expertise (SEE) in accordance with the following [The Law](#) of Kyrgyz Republic 'General Technical Regulations on Ensuring Environmental Safety in Kyrgyz Republic'. Required list of SIEE and State Environmental Expertise does not include economic activities on major road repairs. Accordingly, SIEE does not require State Environmental Expert Review by Ministry of Natural Resources, Ecology, and Technical Supervision of Kyrgyz Republic, as it was developed for capital repair of existing roads, which is included in list of works that do not require state expertise opinion.
72. SIEE report will not be submitted for State Environmental Expertise to Ministry of Natural Resources, Ecology, and Technical Supervision of Kyrgyz Republic, as it is prepared based on detailed design of rehabilitation of existing roads, which is included in list of works not requiring State Expertise conclusion. However, prepared SIEE report serves as a supplement to main project IEE and is considered together with main project IEE.

4. Environmental quality standards for the environment.

73. Following environmental standards apply to Project. International norms are also presented for comparison with Kyrgyz norms. ADB recommends applying more stringent standards as monitoring requirements for project implementation (the IFC and World Bank EHS General Guidelines 2007 are applied).

Air quality.

74. Maximum permissible concentrations of harmful substances in atmospheric air according to Kyrgyzstan and international requirements are shown in following Table.

Table 2 Atmospheric air quality standards.

| Pollutant | Maximum Allowable Concentration (mg/m ³) | Daily Average Concentration (mg/m ³) | According to international requirements (IFC*) |
|----------------------------------|--|--|--|
| Dust | 0.15 | 0.05 | 0.4 |
| Sulfur dioxide SO ₂ | 0.5 | 0.05 | 0.02 |
| Carbon monoxide CO | 5 | 3 | 0.1 |
| Nitrogen dioxide NO ₂ | 0.085 | 0.04 | 0.04 |
| Nitrogen oxide NO | 0.40 | 0.06 | 0.04 |

Source: Sanitary and Hygienic Norms SGBN 2.1.6.1338-03 'Maximum permissible concentration (MPC) of pollutants in the atmospheric air of settlements and According to international requirements (IFC*).

Noise.

75. National noise standards in Kyrgyzstan are summarized in Table 3.

Table 3. Permissible noise levels in the Kyrgyz Republic (dB).

| Description of activity/category | L _{eq} * | | L _{max} ** | |
|---|-------------------|-------|---------------------|-------|
| | Day | Night | Day | Night |
| Areas in close proximity to residential buildings, clinics, medical centers, nursing homes, rest homes, libraries, schools, etc. | 55 | 45 | 70 | 60 |
| Areas in the immediate vicinity of hospitals and hostels | 60 | 50 | 75 | 65 |
| Recreation areas in the territories of neighborhoods and groups of residential buildings, recreation centers, sanatoriums, schools, nursing homes, etc. | 45 | | 60 | |

CN 2.2.4/21.8.562-96 "Noise in workplaces, living quarters, public buildings and residential areas."

Surface water.

76. Standards for water composition and properties of streams and water bodies for different types of water use (domestic, recreational, and fishery) are presented in Table 4 (Rules for Protection of Surface Water of Kyrgyz Republic, approved by Government Resolution of KR No. 128 dated 14.03.2016, as amended by GR Resolution No. 813 dated 15.12.2017).

Table 4. Surface water quality standards.

| № | Indicator | Water Use Purpose | | | |
|----|--|--|--|--|-----------------------|
| | | Population's domestic and drinking water needs | Population's cultural and everyday needs | Fishery Use | |
| | | | | Highest and first category | Second category |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | Weighted substances | When discharging wastewater by specific water user, during work at water body and in coastal zone, concentration in control point must not exceed natural conditions by more than: | | | |
| | | 0.25mg/l | 0.75mg/l | 0.25mg/l | 0.75mg/l |
| | | For water bodies with natural suspended solids above 30 mg/dm ³ during low flow, increase in concentration up to 5% is allowed. Return water with settling rate >0.2 mm/s is forbidden to discharge into water bodies, >0.4 mm/s – into streams. | | | |
| 2 | Floating impurities | Oil films, fats, and accumulation of other impurities must not be present on water surface. | | | |
| 3 | Color | Must not be detected in column | | Water must not acquire foreign color | |
| | | 20 cm | 10 cm | | |
| 4 | Odor, taste | Water must not have odors >2 points, detectable directly or after chlorination or other treatment. | | Water must not cause foreign odor or taste in fish meat. | |
| 5 | Temperature | During summer, wastewater discharge must not raise water temperature more than 3 °C above average monthly temperature of hottest month in last 10 years. | | Temperature must not exceed natural water temperature by >5 °C; total increase must not exceed 20 °C in summer and 5 °C in winter for cold-water fish (salmonids, whitefish), and not more than 28 °C in summer and 8 °C in winter in other cases. | |
| 6 | Hydrogen index (pH) | Must remain within 6.5–8.5. | | | |
| 7 | Water mineralization | Not more than 1000 mg/L, including chlorides 350 mg/L, sulfates 500 mg/L | | Regulated according to fishery water assessment. | |
| 8 | Dissolved oxygen | Not less than 4 mg/L any time of year in sample collected before 12:00. | | During the winter (ice) period, there must be at least: | |
| | | | | 6 mg/l | 4 mg/l |
| | | | | During the summer (open) period, all water bodies must have at least 6 mg/dm ³ . | |
| 9 | Chemical oxygen demand (COD), dichromate | Not to exceed | | - | - |
| | | 15 mgO ₂ /L | 30 mgO ₂ /L | | |
| 10 | Biochemical oxygen demand (BOD) | Not to exceed 2 mgO ₂ /L at 20 °C | | Not to exceed 2 mgO ₂ /L at 20 °C | |
| | | 2 мгO ₂ /л | 4 мгO ₂ /л | 3 мгO ₂ /л | 3 мгO ₂ /л |
| | | | | If during the winter period dissolved oxygen content in water bodies of the highest and first categories decreases to 6.0 mg/m ³ , and in water bodies of the second category to 4 mg/m ³ , then | |

| № | Indicator | Water Use Purpose | | | |
|--|----------------------------------|--|--|---|-----------------|
| | | Population's domestic and drinking water needs | Population's cultural and everyday needs | Fishery Use | |
| | | | | Highest and first category | Second category |
| 1 | 2 | 3 | 4 | 5 | 6 |
| | | | | only wastewater that does not change the BOD of the water may be discharged into them. | |
| 11 | Chemicals | Must not exceed MAC (maximum allowable concentration) or ODU. | | | |
| 12 | Pathogens | Must not contain intestinal pathogens, including viable helminth eggs (Ascaris, Trichuris, Toxocara, Fasciola), oncospheres, or viable cysts of pathogenic protozoa. | | | |
| 13 | Total coliform bacteria | ≤1000 CFU/100 mL | ≤500 CFU/100 mL | - | - |
| 13-1 | Thermotolerant coliform bacteria | ≤100 CFU/100 mL | ≤100 CFU/100 mL | - | - |
| 14 | ≤100 CFU/100 mL | ≤10 PFU/100 mL | ≤10 PFU/100 mL | - | - |
| 15 | Water toxicity | - | - | Effluent must not have acute toxicity to test organisms. Water in control point must not have chronic toxicity. | |
| Note: "-" indicates no standard applied. | | | | | |

III. PROJECT DESCRIPTION.

GENERAL INFORMATION.

77. CAREC Corridors 1 and 3 Connecting Road (Balykchy - Kochkor km 0 + 000 - km 43 + 000 (Lot 1) and Kochkor - Epkin km 62 + 400 - km 89 + 500 (Lot 2)) project aims to improve transport infrastructure and market access in Kyrgyz Republic. Project will result in efficient movement of freight and passenger traffic along CAREC corridors 1 and 3, improved safety for road users and pedestrians, and minimization of road's environmental impact.
78. Main tasks:
- a) Provide safe and comfortable travel conditions for all road users, namely motor vehicles, cyclists/motorcyclists and pedestrians, optimized for the intended function of the road and level of use;
 - b) Ensure that the State Road Authorities (Government) ensure low-cost operation of the road for the life of the road;
 - c) Ensure compliance with pavement standards and other relevant norms and/or standards of the State Road Authorities.
79. Core Project 'CAREC Corridor 1 and 3 Connecting Road (Balykchy - Kochkor km 0 + 000 - km 43 + 000 and Kochkor - Epkin km 62 + 400 - km 89 + 500) will improve the following socioeconomic indicators of the Kyrgyz Republic regions:
- Reduction of travelling time when moving people and goods from southern regions to Naryn and Issyk-Kul regions.
 - Reduction of transport costs due to shorter routes and better road conditions.
 - Increase in local and international transport and movement.
 - Additional income-generating opportunities for local residents.
 - Maintenance of vehicles (MVs). Reduced operating costs
 - Market accessibility and trade revitalization;
 - Market diversification and availability of key goods and services;
 - Development of tourism potential of the territory;
 - New employment opportunities;
 - Improved social connectivity, accessibility and mobility;
 - Reduced prices for agricultural inputs such as fertilizers, seeds, pest control chemicals;

PROJECT TYPE AND CATEGORY.

80. CAREC Corridor 1 and 3 Connecting Road (Balykchy-Kochkor km 0 + 000 - km 43 + 000 and Kochkor-Epkin km 62 + 400 - km 89 + 500) project is assigned category "B" for environmental assessment. This EIR is part of detailed design, covering eight new additional road sites totaling 39.4 km, and is integral to IEE of main project.

DESCRIPTION OF ADDITIONAL ROAD SITES.

81. Rehabilitation of Additional Road Sections with Savings project provides repair of three sections on Lot 1 Balykchy - Kochkor km 0 + 000 - km 43 + 000 (Figure 2):

- Kyzyl Ompol – Ak-Olon road, adjacent to the main project road km.22+680 LHS, L = 12.28 km.
- Street in Balykchy, entrance to the Ministry of Emergency Situations, adjacent to the main road km 1+720 LHS, L = 1.66 km.
- Street in the city of Balykchy, entrance to houses, at a distance of 0.3 km to the left of the main road km 1+720 LHS, L = 0.44 km.

and five sections on Lot 2 Kochkor-Epkin, km 62+400 – km 89+500 (Figure 3)

- Tendik-Roundabout section, adjacent in a straight line from Tendik village to the beginning of the project road km.62+400, L = 2.9 km;
- Kum-Dobo - Komsomol section of the Kochkor-Communism highway, 17.16 km long, at a distance of 0.5 km to the right of the Kochkor-Epkin project road
- Kum-Dobo - Shamschy-Saralasaz highway, 3.86 km long, located to the right of the Kochkor-Epkin project road.
- Communism-Ortok highway, 0.8 km long, at a distance of 0.6 km from the Kochkor-Epkin road k. 89+300 RHS.
- road to the village of Cholpon, 0.41 km long, adjoins the Kochkor-Epkin road, km 81+400 RHS.

Road Kyzyl Ompol - Ak-Olon.

82. Location – Ton district, Kok-Moinok village district, outside the territory of populated areas. Length of the road – 12.285 km. Road category – III.
83. Section of Kyzyl-Ompol - Ak Olon road is a branch of Balykchy-Kochkor road, chainage 22+680 LHS (Figure 4, Photo 1), to existing Balykchy-Barskoon highway. Section has old asphalt surface (photo 2-3).
84. Sensitive objects: at the end of the site there are household buildings (photo 4)
85. Vegetation: Existing section of road passes through flat-foothill desert zone, characterized by wormwood-cereal vegetation. No forest belt along road, with several isolated trees and thickets of bushes at end of road (photos 5-6).
86. Water bodies: In the area of the site, there is an intersection with an irrigation channel. Many water/mudflow structures have exposed and destroyed concrete heads/wings at the entrance and exit; the soil around them is washed away, causing soil erosion (photos 7-10).
87. At end of road section, 100-200 meters before Balykchy-Barskoon highway, on LHS and RHS of road, there are dumps of old asphalt, construction waste, unsuitable soil, and waste rock (photo 11-12).
88. Cultural and archaeological resources: none.



Figure 3. Site road map.



Photo 1. Beginning of Kyzyl-Ompol – Ak Olon section.



Photo 2. Route of Kyzyl-Ompol – Ak Olon section.



Photo 3. Road surface - old asphalt pavement.



Photo 4. Households at end of Kyzyl-Ompol – Ak Olon road section.



Photo 5. Thickets of bushes at end of Kyzyl-Ompol – Ak Olon road section.



Photo 6. A free-standing tree and vegetation along the road.



Photo 7. Condition of head/wing of drainage structures at outlet.

Soil erosion.



Photo 8. Condition of head/wing of drainage structures at outlet.



Photo 9. Condition of head/wing of drainage structures at outlet.

Soil erosion.



Photo 10. Condition of head/wing of water drainage structures at entrance. Soil erosion.



Photo 11. Dumps of construction waste, unsuitable soil



Photo 12. Dumps of construction waste, unsuitable soil/

Alternative analysis.

89. Two alternatives were considered: 1) Zero option ("no action" or absence of activity) and 2) Road rehabilitation project.
90. If zero option is chosen — i.e., refusal to perform rehabilitation works — road will remain in current state. This will maintain negative environmental impacts, including dust, noise, and vibration, and worsen deterioration of engineering structures. In addition, it will negatively affect local population's quality of life by limiting access to important facilities and increasing travel risks.
91. In contrast, rehabilitation of this road section will significantly reduce environmental impact, restore infrastructure, and improve social conditions.
92. Table below illustrates differences between zero option and rehabilitation option, highlighting advantages of latter:

Table. Comparison of alternative options.

| Criterion | Zero Option (No Rehabilitation) | Road Rehabilitation |
|--------------------------|---|--|
| Environmental impact | High levels of dust, noise, and vibration | Significant reduction of pollution and noise levels |
| Infrastructure condition | Continued deterioration of structures, erosion (photos 7–10) | Restoration and strengthening of road and engineering structures |
| Social impact | Limited access, worsening living conditions | Improved transport accessibility and quality of life |
| Traffic safety | Higher risk of accidents, difficult movement, no safety signs | Improved safety and comfort for drivers and passengers |
| Access to Son-Kul Lake | Difficult, especially in adverse weather | Easier and safer access, promotion of tourism |

Street in Balykchy, entrance to the Ministry of Emergency Situations.

93. Street is located in Balykchy and branches from new Balykchy–Kochkor road at PK 1+725 LHS, with length of 1.66 km up to entrance of Ministry of Emergency Situations territory (Fig. 5, photo 13). Road section has old, partially damaged asphalt pavement (photo 14). Road category – IV.

94. No forest belt along road, only a few isolated trees.



Figure 4. Street in Balykchy - Entrance to Ministry of Emergency Situations, L = 1.660 km.



Photo 13. Beginning of street - adjacent to Balykchy-Kochkor road at chainage 1+725 LHS



Photo 14. Entrance to Ministry of Emergency Situations.

Street in Balykchy - Entrance to houses.

- 95. Street in Balykchy, 0.44 km long, branch from additional project section (from new Lot-1 chainage 1+725 LHS road to entrance to Ministry of Emergency Situations territory, 1.66 km long). Surface of street section is unpaved (photo 15).
- 96. There is no forest belt along the road, there are only a few isolated trees.



Figure 5. Street in Balykchy – Access road to houses, length 0.440 km.



Photo 15. Road is unpaved.

Analysis of alternatives by section: Street in Balykchy – access to houses and Ministry of Emergency Situations

- 97. **Zero option** represents a passive approach, maintaining existing problems: pollution, noise, vibration, limited access, and worsening living conditions.
- 98. **Road rehabilitation**, in contrast, offers active solution aimed at improving environmental conditions and enhancing social resilience, as shown in table below.
- 99. **Recommendation:** Considering significant environmental and social advantages of rehabilitation, it is preferred option for implementation.

Table. Comparative analysis of options: "No Action" and "Road Rehabilitation".

| Criterion | Zero Option (No Rehabilitation) | Road Rehabilitation |
|----------------------|---|---|
| Environmental impact | Lack of proper road surface (photos 13–14) leads to increased dust, noise, and vibration, as well as contamination of road surface by oil products (photo 15), worsened by poor condition | Significant reduction of pollution, noise, and vibration due to improved pavement |
| Social impact | Limited access, worsening living conditions | Improved transport accessibility, better quality of life, enhanced traffic safety |

Section of the Tendik-Roundabout road of the Bishkek-Naryn-Torugart highway.

- 100. Location – Kochkor district, Kochkor rural district, outside the territory of populated areas.
Road length – 2.9 km.
Road category – III.
- 101. Beginning of section starts beyond outskirts of Tendik v. (Fig. 7) and follows existing route to Roundabout at km 62+400 (Roundabout intersection of Bishkek-Naryn-Torugart road, Kochkor bypass road, beginning of project section 2A Kochkor-Epkin (photo 16).
- 102. Sensitive objects. Sensitive objects are areas where residents are more susceptible to adverse effects of pollutants and other harmful factors caused by construction work. Typically, they include hospitals, schools, kindergartens, nursing homes, and holiday homes. Along road, such objects are: Water intake structures RHS (km 1+450) (photo 17), Cemetery in Tendik v. LHS (km 2+700-2+880) (photo 18).
- 103. Water bodies. No surface water bodies in design work area. Along road section route, there is a ditch system for supplying irrigation water for agricultural lands (photo 19).
- 104. Vegetation. Along route of road section on both sides, there is a strip of deciduous trees, with agricultural lands located (photos 16, 17, and 19).
- 105. Communications. Power transmission line poles run along road outside design work area and are not subject to relocation.
- 106. Cultural and archaeological resources. No objects of historical or cultural significance identified along road section.



Figure 6. Section of Tendik-Roundabout road of Bishkek-Naryn-Torugart highway.



Photo 16. Beginning of Tendik-Roundabout road section.



Photo 17. Water intake structures RHS.



Photo 18. Cemetery LHS.



Photo 19. Route of Tendik-Roundabout road section.

Alternatives Analysis

- 107. Zero option represents passive approach, maintaining existing problems: pollution, noise, vibration, limited access, and worsening living conditions.
- 108. Road rehabilitation, in contrast, is active solution aimed at improving environmental conditions, enhancing transport accessibility, and strengthening social resilience.
- 109. Recommendation: Considering significant environmental and social advantages of rehabilitation, this option appears most feasible for implementation.

Table. Comparative analysis of options: “Zero Option (No Rehabilitation)” and “Road Rehabilitation”.

| Criterion | Zero Option (No Rehabilitation) | Road Rehabilitation |
|----------------------|---|---|
| Environmental impact | High levels of dust, noise, and vibration; damaged road surface | Significant reduction of pollution, noise, and vibration due to improved pavement |
| Social impact | Limited access, worsening living conditions | Improved transport accessibility, enhanced traffic safety, better quality of life |

Section Kum-Dobo-Komsomol highway Kochkor-Communism.

- 110. Location: Kochkor district, Kum-Dobon v. district, outside populated areas (Figure 8). Length of the road: 17.16 km.
Road category – IV.

111. Beginning of section starts beyond outskirts of Kum-Dobo v., behind bridge over Buzulgan-Suu River (photo 20), and runs in foothills along existing road 17.16 km long towards Komsomol v. (photo 21, 22). Section does not have asphalt pavement. At end of project section is cemetery of Komsomol v. (photo 23). Along road, in some areas, existing burial mounds, cemeteries, abandoned sheepfolds, and operating sheepfolds are located close by; power lines run through them.
112. Sensitive objects.
- Existing cemeteries close to road: at km 5+800 LHS (photo 24), at km 16+800 – 17+100 on both sides of road (photo 25)
 - Along route of road section, there are more than 10 sheepfolds, both operating and abandoned/destroyed. Three sheepfolds are near road (km 4+700, km 9+900 (photo 26), km 14+500 (photo 27) at 10 to 30 m). Remaining sheepfolds are more than 70 m from road and not subject to monitoring.
113. Water bodies. In project site area, watercourses (streams, drainage waters) flow along road, with intersections of watercourses (photo 28, 29). Pipes in some places are in emergency condition (photo 30) and need replacement.
114. Vegetation. This road section is located in foothill zone and crosses pasture lands. Roadside area consists of meadow-pasture lands used for grazing livestock. Vegetation cover in this area is limited, but along certain road sections trees have been planted (photos 31, 32).
115. Cultural and archaeological resources. Along road at km 1+960 and km 5+260 – 8+200 there are burial mounds (photos 33–36), some of which are damaged.
116. Communications. Power transmission line poles run along road outside design work area and are not subject to relocation.



Figure 7. Highway Kum-Dobo - Komsomol - 17.16 km.



Photo 20. Beginning of Kum-Dobo-Komsomol road section.



Photo 21. Route of Kum-Dobo – Komsomol road section.



Photo 22. Photo 6. Route of the Kum-Dobo – Komsomol road section.



Photo 23. End of Kum-Dobo-Komsomol project section. View from Komsomol v.



Photo 24. Cemetery km 5+800 LHS Kum-Dobo-Komsomol.



Photo 25. Cemetery on road section from km 16+800 – 17+100 on both sides of road.



Photo 26. Destroyed sheepfold at km. 9+900.



Photo 27. Sheepfold near road at km 14+000.



Photo 28. Watercourses to right of Kum-Dobo-Komsomol road.



Photo 29. Watercourses to left of Kum-Dobo-Komsomol road.



Photo 30. " Condition of water pipe.



Photo 31. Trees along road, growing at beginning of project road; further along route, there are practically no trees.





Photo 32-36. Mounds located on road section from km 5+200 to 7+200.

Section of the Kum-Dobo-Shamshy-Saralasaz road, L = 3.86 km.

117. Location: Kochkor district, Kum-Dobon v. district, outside populated areas (Fig. 9). Road length: 3.86 km. Road category – IV.
118. Section of road from Kum-Dobo v. to Shamshy v. located in foothill zone. Dirt road passes through pasture lands.
119. Sensitive objects. Sensitive objects are areas where residents are more susceptible to adverse effects of pollutants and other harmful factors caused by construction work. Typically include, but not limited to, hospitals, schools, kindergartens, nursing homes, holiday homes. No such objects on site (photos 37-39).
120. Water bodies. In project site area, watercourses flow along road, with intersection with irrigation canal (photo 38,39).
121. Vegetation: The roadside area is mainly grassland for grazing (photos 37-39).
122. Cultural and archaeological resources. No historically or culturally significant sites have been identified along the road section.
123. Communications. None.



Figure 8. Highway Kum-Dobo - Shamschy - Saralasz - 3.86 km.



Photo 37. Section Kum-Dobo-Shamschy-Saralasz.



Photo 38. Irrigation channel.



Photo 39. Irrigation canal crossing the road.

Section of the Communism-Ortok road, L = 0.8 km.

124. Location: Kochkor district, Kara-Suu v. district, outside populated area (Fig. 10). Road length: 0.8 km. Road category – IV.
125. Beginning of section is branch road towards Ortok v. (Ak-Kuduk) from asphalt road Epkin - Mantysh. End of section is before bridge over Chu River. Road is unpaved (photo 40-42).

- 126. Sensitive objects. Road section passes outside populated area. No sensitive objects.
- 127. Water bodies. In project site area, there is an intersection with irrigation channel.
- 128. Vegetation. Section of existing route passes through pasture lands and farmland. No trees along road (photo 44).
- 129. Cultural and archaeological resources: None.
- 130. Communications. None.

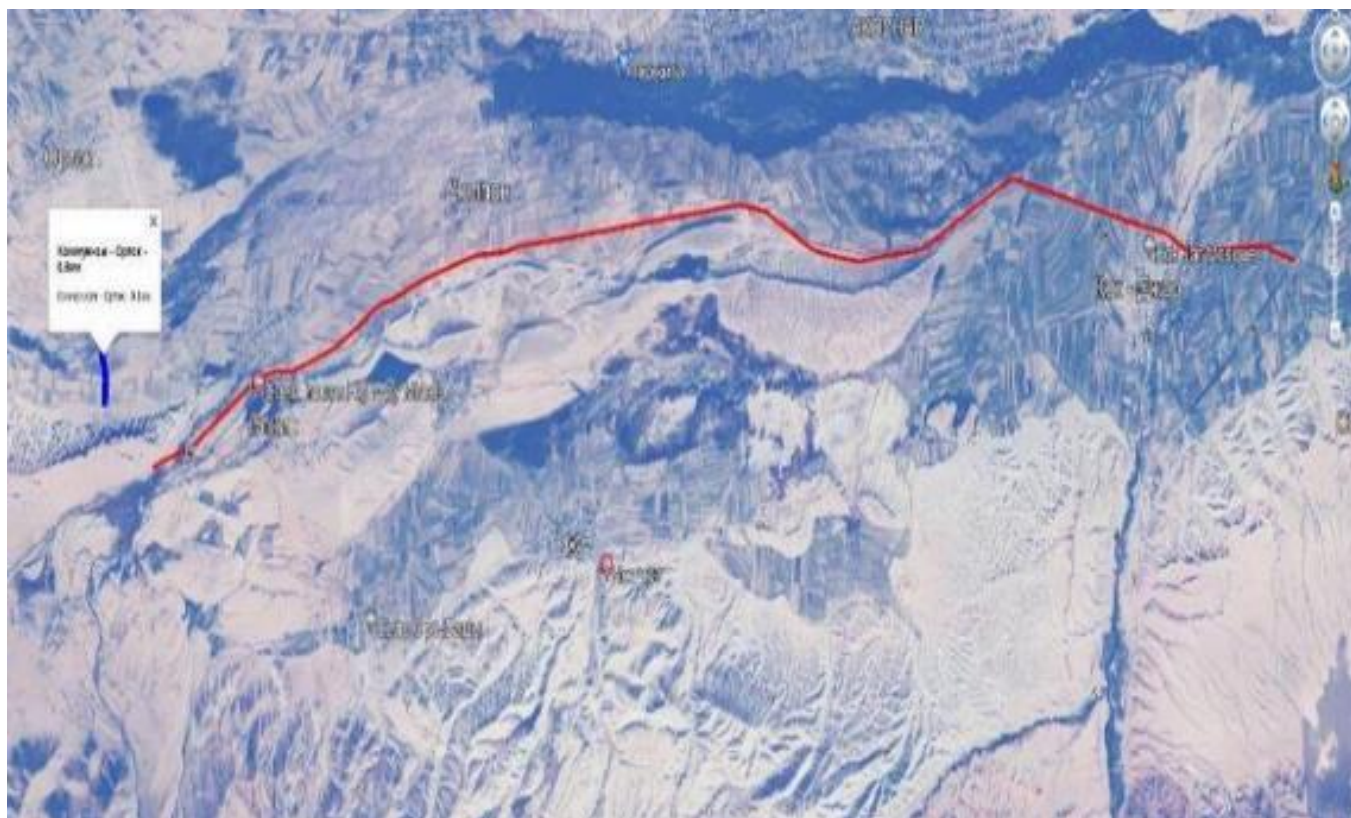


Figure 9. Highway Communism - Ortok - 0.8 km.



Photo 40. Beginning of section of Communism-Ortok road.



Photo 41. End of section.

Alternative analysis.

131. Analysis of alternatives was conducted jointly for three road sections:
1. Kum-Dobo–Komsomol
 2. Kum-Dobo–Shamshy–Saralasaz
 3. Kommunizm–Ortok
- These sections share: location outside settlements, passage through meadow-pasture lands, unpaved road surface, similar technical condition, and environmental characteristics.
132. Two options were considered: “zero” and road rehabilitation.
Zero option — “no action” — represents passive approach, maintaining existing problems: pollution, noise, vibration, limited access to transport network, and worsening living conditions.
Road rehabilitation, in contrast, offers active solution aimed at improving environmental conditions and enhancing social resilience.
133. Considering all key criteria — environmental, social, technical, and cultural — road rehabilitation is most effective and sustainable option. It not only addresses existing problems but also creates foundation for long-term regional development, improving quality of life and ensuring safety.

Table. Comparative analysis of options: “Zero Option (No Rehabilitation)” and “Road Rehabilitation”.

| Criterion | Zero Option (No Rehabilitation) | Road Rehabilitation |
|---------------------|--|---|
| Environmental risks | High levels of dust, noise, and vibration; contamination of surface water; degradation of meadow-pasture lands | Reduction of pollution, environmental protection |
| Social impact | Limited access to transport network; worsening living conditions; continued deterioration of culverts (photo 30) | Improved transport accessibility, better quality of life, restoration and strengthening of engineering structures |
| Safety and comfort | Higher risk of accidents, no signs, low travel comfort | Improved safety, installation of signs, comfortable movement |

Section of access road to the village of Cholpon, length 0.41 km.

134. Location – Kochkor district, Kara-Suu rural district (Fig. 11).
Road category – IV.
135. Section of road has old asphalt surface, starts from Lot-2 Kochkor-Epkin road (chainage 81+400) and ends at level of first two houses in Cholpon v. (photo 42-43).
136. Water bodies. None.
137. Vegetation. There is a forest belt of deciduous trees along the road. Behind the forest belt there are agricultural lands.
138. Cultural and archaeological resources: None.
139. Communications: There are power transmission poles and lighting poles along the road



Figure 10. Road to Cholpon v. - 0.41 km.



Photo 42. Beginning of access road from Kochkor-Epkin highway (chainage 81+400) to Cholpon v.



Photo 43. End of section of access road from Kochkor-Epkin highway (chainage 81+400) to Cholpon v.

NECESSITY OF THE PROJECT.

140. Project “Connecting Road of Corridors 1 and 3 within CAREC (Balykchy - Kochkor km 0 + 000 - km 43 + 000 (Lot 1) and Kochkor - Epkin km 62 + 400 - km 89 + 500 (Lot 2) aims to improve transport infrastructure and market access in Kyrgyz Republic. Project will result in efficient movement of freight and passenger traffic along CAREC Corridors 1 and 3, improving safety for both road users and pedestrians, and minimizing road's environmental impact.
141. The main tasks of rehabilitation of additional road sections
- a) to provide safe and comfortable conditions for movement for all road users;
 - b) to provide state road authorities (the Government) with low-cost operation of the road throughout its service life;
 - c) ensure compliance with pavement standards and other relevant regulations and/or standards of state road authorities.

VOLUME/SCALE OF WORK.

142. Construction work on rehabilitation of specified sections planned within existing boundaries without expanding road RoW, thus minimizing environmental impact.
143. Additional road sections to be repaired are outside populated areas. No permanent or temporary impacts on households and infrastructure expected, thus no losses expected. Due to absence of economic or physical displacement, no additional funds for compensation payments required.

PROJECT SOLUTIONS.

144. The project includes major repairs of two existing Category III road sections: Kyzyl Ompol – Ak-Olon road, 12.28 km long, and Bishkek – Naryn – Torugart road (Tendik – Roundabout section), 2.9 km long. The remaining six road sections are Category IV.
145. The Project does not provide for a change in the category of existing roads.
146. Rehabilitation activities include the rehabilitation/reconstruction of road sections in accordance with the parameters listed below.
147. Road rehabilitation will mainly be carried out within the existing right-of-way, thereby minimizing environmental impacts. Technical parameters for Category III road sections (Figure 12):
Number of lanes: 2
Lane width: 3.5 m
Carriageway width: 7.00 m
Shoulder width along road sections: 2.5 m
Technical parameters for Category IV road sections:
Number of lanes: 2
Lane width: 3.0 m
Carriageway width: 6.00 m
Shoulder width along road sections: 1.5 m
148. The scope of major repair works includes: layout of the road centerline; setting out and securing the elements of the roadbed with marking of corners and stakes outside the construction area; excavation and removal of unsuitable material to the spoil area; loosening, grading, and compaction of the existing roadbed; installation of a gravel sub-base and upper shoulder layer, crushed stone base; laying of coarse-grained asphalt concrete; and road marking. Planned work volumes for Lot 1 and Lot 2 are provided in Tables 5 and 6 below.

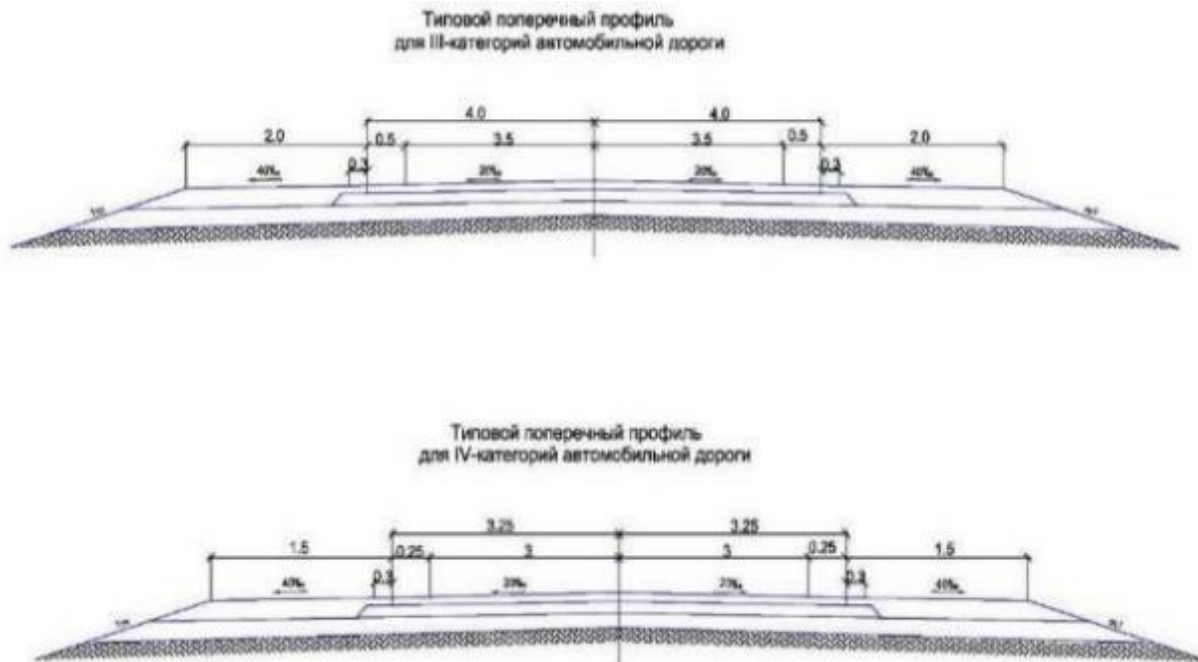


Figure 11. Typical cross-section of roads of categories III and IV.

Table 5. Scope of work for Lot 1.

| Description of the name of the types of work | Measurement units | Quantity | | |
|--|-------------------|----------|--------|-------|
| | | 1 | 2 | 3 |
| Site* | | | | |
| Clearing and uprooting the road lane | ha | 2.64 | | |
| Dismantling and removal to the dump of reinforced concrete pipes, incl. heads, wing panels and other concrete elements | m ³ | 231.2 | | |
| Excavation and removal to the dump of unusable material after dismantling pipes and artificial structures | m ³ | 806 | | |
| Loosening and removal of asphalt concrete pavement to the dump | m ³ | 9,013 | 1 164 | 434 |
| Preparation of the existing roadbed: loosening, planning and compaction with moistening | m ² | 144 370 | 13,398 | 5 346 |
| Excavation and removal to the dump of unusable material from the excavations | m ³ | 32,708 | 1,957 | 482 |
| Embankment, ordinary material from the quarry | m ³ | 6,933 | 50 | 139 |
| Base course: thickness 30 cm | m ³ | 39 424 | | |
| Subbase, shoulder | m ³ | 11,634 | | |
| Upper layer of the shoulder: gravel, thickness 15 cm | m ³ | | 858 | 222 |
| Base: crushed stone, thickness 20 cm | m ³ | 16,059 | 1,789 | 498 |
| Application of the primary layer of liquid bitumen | m ² | 97 920 | 10,721 | 2,993 |
| Provision, placement and compaction of coarse-grained asphalt concrete, thickness 7 cm. | m ³ | 6,583 | 750 | 209 |
| Provision, placement and compaction of a wearing layer made of stone mastic asphalt concrete (SMA-20), 5 cm thick | m ³ | 4,895 | | |

* 1 - road Kyzyl Ompol - Ak-Olon, 2 - street in Balykchy, drive to the Ministry of Emergency Situations, 3 - street in Balykchy, drive to houses

Table 6. Scope of work for Lot 2.

| Description of the name of the types of work | Measurement units | Quantity | | | | |
|--|-------------------|----------|---------|--------|-------|-------|
| | | 1 | 2 | 3 | 4 | 5 |
| Site* | | | | | | |
| Clearing and uprooting the roadside strip | ha | | 2,086 | | | |
| Loosening and removing asphalt concrete pavement to a dump | m ³ | 3 650 | | | | 220 |
| Preparation of the existing road bed: loosening, | m ² | 42 935 | 166,821 | 32 440 | 7,000 | 4,065 |

| | | | | | | |
|---|----------------|--------|---------|--------|-------|-------|
| planning and compaction with moistening | | | | | | |
| Excavation and removal of unsuitable material from the excavations to a dump | m ³ | 1 613 | 16 113 | 2,521 | 333 | 313 |
| Embankment, ordinary material from the quarry | m ³ | 2 350 | 5,094 | 602 | 439 | 27 |
| Base course, thickness 30 cm | m ³ | 7 409 | | | | |
| Top layer of the shoulder: gravel, 15 cm | m ³ | 2 386 | 9 496 | 1,896 | 389 | 234 |
| Base: crushed stone, thickness 20 cm | m ³ | 3,789 | 18,947 | 3 810 | 862 | 449 |
| Applying a primary layer of liquid bitumen | m ² | 23 093 | 113 498 | 22,773 | 5 172 | 2 692 |
| Provision, placement and compaction of coarse-grained asphalt concrete, thickness 7 cm. | m ³ | 2,078 | 7,939 | 1,594 | 362 | 188 |
| Provision, placement and compaction of coarse-grained asphalt concrete, thickness 9 cm | m ³ | 2,078 | | | | |

* 1 - Tendik-Roundabout section 2 - Kum-Dobo - Komsomol section 3 - Kum-Dobo - Shamshy-Saralasaz highway 4 - Communism-Ortok highway 5 - highway to the village of Cholpon

149. Aggregate material will be sourced from potential quarries of main Project and used for construction of road embankments.
150. Unsuitable material will be removed to nearby waste dumps obtained for main Project.

GENERAL CHARACTERISTICS OF THE ENVIRONMENTAL SITUATION ALONG THE PROJECT ROAD.

151. In terms of physical and biological environment, only 2 of 8 project road sections have ecologically significant zones. These include strips of mature trees along almost entire road length on both sides, and several small seasonal watercourses.
152. During field surveys, 3 locally important sensitive areas were identified on additional project sections. These areas are detailed in Route Statements in this report. Sensitive areas are:
 1. - Kyzyl Ompol – Ak-Olon road (households at the end of the road section)
 2. - Tendik-Roundabout area (water intake, cemetery)
 3. - section Kum-Dobo - Komsomol (cemetery, sheds)

IV. DESCRIPTION OF THE ENVIRONMENT.

Physical Resources of Project Area.

Geomorphology, Topography, Geology, and Soil.

153. Topography of Kyrgyz Republic is very complex. Surface elevation ranges from 400 to 7000 m. Orographically, country consists of several mountain ranges, mainly oriented in latitudinal and sublatitudinal directions, separated by intermontane valleys and basins. Average elevation is 2750 m above sea level, highest point is Victory Peak (7439 m) in Central Tien-Shan, on ridge of Boz-Kyr range in eastern continuation of Kakshaal-Too, at border with China. Lowest point (401 m) is near village of Kulundy in Leilek district, Batken region, close to Tajikistan border.
154. Mountain ranges of Kyrgyz Republic are part of highest ranges of Tien-Shan and Pamir-Alay. These mountains form natural geographic boundaries between Central Asia and China. Strongly dissected terrain across most of country is important factor for settlement and development. Mountains are characterized by high rates of erosion, landslides, rockfalls, and avalanches.
155. Project road sections Balykchy–Kochkor (km 0+43) and Kochkor–Epkin lie within mountain ranges of Northern and Inner Tien-Shan. Route passes through mountainous and plain areas of Issyk-Kul and Naryn regions at elevations from 700 to 3500 m above sea level, crossing valleys of Chu River.

Soil and geology.

Issyk-Kul region, Ton district.

156. On sections of additional project roads located on Lot 1, lake deposits are widespread, represented by gravel and sand. Lake deposits are covered by pebble soil of alluvial origin. Their thickness is more than 5 meters.
157. Fill-up soil of roadbed is represented by pebble and crushed stone soil with filler consisting of sand to loamy material with 15-30% content, including field stones of 5-30%. Depth of fill is

within 0.2 to 30.3 m. Roadbed subgrade consists of following soil: crushed stone, pebble, gravel, clay loam and slate.

158. At elevation 1630-1850 m - plain-piedmont desert represented by following soils: mountainous-valley, clay-colored and light-brown, absinthial gramineous vegetation. Piedmont mid-mountain steppe zone at elevation 1850-2100 m, mountainous chestnut soils and black soil gramineous absinthial dry steppe, tall grass meadow steps

Naryn region, Kochkor district.

159. Project sections of additional roads on Lot 2 are located in Kochkor Valley, described as a depression at an altitude of 1800-2500 m, length of 80 km and width of 20 km. Overall area can be considered steppe with fragments of forests and meadows. Agriculture and livestock farming are widespread near road, main activity. Section from km 64 to km 92 is located in Kochkor lowland, oriented east-west. Surface of plain is flat with slightly wavy longitudinal profile. Marks fluctuate from 1856 to 2250 meters above SIEE level, rise takes place towards Kyzart Pass.
160. The territory of Kochkor district is a vast agricultural area devoted to farming and livestock breeding. Kochkor valley is bounded by Kyrgyz mountain range to north and Karagatty Kyzart to south. Mountainous region has very rugged relief with high slopes. Altitude difference in valley ranges from 1700 to 2400 meters, tracts from 2400 to 4502 m. Terrain is undulating and mountainous, covered with grass suitable for grazing. Roadside area is mainly grassland for grazing. Local vegetation is sparse; however, some parts of road are planted with trees (mainly poplars, elms and white acacia).

Climate.

Issyk-Kul region, Ton district.

161. The climate in Issyk-Kul is referred to as a local steppe climate, described as continental with cold winters and hot summers. There is little rainfall throughout the year with the average of annual rainfall 390 mm. During the summer months (June-August), the average monthly high temperatures on the shores of the lake are around 20-25°C. During the winter (December-March) below zero temperatures, but the lake does not freeze during the winter. The annual average temperature in the area is 5.8 °C.

Naryn region, Kochkor district.

162. Most of the Naryn district is mountainous. The climate is continental; winters are cold and long. The lowest absolute temperature drops to 45°C (below zero). Summers are short and cool. There are several climatic zones in the district: at an altitude of 1400-1600 m above SIEE level - deserts, semi-deserts; 1600-1800 m, 1800-2000 m - steppe; 2500-4000 m subalpine and alpine zones; (iv) above 4000 m zone of eternal snow.
163. During the day there can be sudden changes in temperature, frosts can occur even in the summer months. The average annual precipitation on the plains is 200-300 mm, slightly more in the mountains. The period of heavy rain falls in the second half of spring and the first half of summer, when precipitation amounts to 30 to 60% of annual precipitation. In the valleys,

precipitation increases from west to east. Due to strong winds, snowfalls in the Kochkor valley are rare and the cover is unstable

Water resources.

Issyk-Kul region, Ton district.

164. There are two major water bodies that are included in the project sections of the additional roads - Lake Issyk-Kul, the Chu River. No major rivers cross the project sections of the additional roads. At the beginning of the section in the city of Balykchy, the distance between the road section and the water's edge of Lake Issyk-Kul is about 2.5-3.0 km. However, there are built-up areas between them, consisting of residential, commercial and industrial zones. Issyk-Kul (in Kyrgyz it means warm lake) is an endorheic lake in the Northern Tien Shan Mountains in eastern Kyrgyzstan, it is the tenth largest lake in the world by volume, and the second largest salt lake after the Caspian SIEE. Issyk-Kul became a Ramsar site in 1975 and is considered a body of globally significant biodiversity (Ramsar site Code RDB 2KG001) and is part of the Issyk-Kul Biosphere Reserve.
165. Lake Issyk-Kul is 182 km (113 mi) long, up to 60 km (37 mi) wide, with a surface area of 6,236 sq. km (2,408 sq. mi). It lies at an elevation of 1,607 m (5,272 ft), reaching a maximum depth of 668 m (2,192 ft). About 118 rivers and streams flow into the lake, the largest being the Jyrgalan and Tyup. It is also fed by springs, including many hot springs, and snowmelt. Currently, the lake has no visible outlet, but some hydrologists hypothesize that deep underground its water filters into the nearby Chu River. Mineral deposits such as monohydrocalcite, one of the few known lacustrine minerals, occur on the lakebed. The water's salinity is about 0.6%, compared with 3.5% in typical seawater.
166. The Chu River begins in the mountains of the central Tien Shan in glaciers. Flowing through the valley of Kochkor Chu river enters the Orto-Tokoy basin, which is compressed in the alignment of the mountain ranges and Kyzyl-Ompol, as shown in Figure 8. Archaly -Mazar. Behind the dam the river passes through the Boom gorge and merges with the Chon-Kemin river. The catchment area of Chu River is about 30 thousand km². The Chu River is one of the biggest rivers in Kyrgyzstan, with a length of 1,070 km and a water basin of 67.5 thousand square km. Within the territory of Kyrgyzstan Chu River have over 4,892 tributaries and channels flowing into it.

Naryn region, Kochkor district.

167. Naryn region contains more than 5,000 rivers and streams. Mountain ranges with perennial glaciers, which feed many of these rivers, extend far beyond the region. Glaciers, located at elevations of about 4,000 m, cover a total area of roughly 500 sq. km. Most are situated in Kakshaal Range, with the largest being Aksay, Ai-Tal, and Orto-Tash. The area also hosts many alpine lakes, the largest of which are Son-Kol and Chatyr-Kol.
168. Naryn River, the longest in the country, flows through Naryn region and supports seven hydropower plants. It provides significant water flow, which has major impact not only on Kyrgyzstan's economy but also on Uzbekistan, Kazakhstan, and Tajikistan. Its flow ranges between 10–14 cu. km. Beyond Kyrgyzstan, Naryn River merges with Saryjaz, Inylchek, and Ak-Shirak rivers, which then flow into China's Tarim Basin. Most important tributaries of Naryn

are Maly Naryn (407 m³/s), On-Archa (160 m³/s), Jergital (65.4 m³/s), and Kok-Gert (Kazhyrty) (64.5 m³/s). Together with Syr Darya, Naryn forms the second-largest river in Central Asia — Syr Darya.

169. Eastern watershed up to Kyzart Pass drains into Orto-Tokoy Reservoir via Kochkor River. Main rivers in this area are Joon-Aryk, which joins Kochkor River at 67th km. Kochkor River, located in Kochkor District of Naryn region, is formed by confluence of Karakol and Seok rivers. It is 45 km long, with a catchment area of 2,590 sq. km and an average annual discharge of 12.6 cubic meters per second. Chu River originates at confluence of Kochkor and Zhany-Aryk rivers near village of Kok-Zhar.
170. None of the above-mentioned rivers intersect project road sections.

Environmental Resources in Project Area.

Issyk-Kul region, Ton distric.t

171. According to general characteristics of areas, in accordance with geobotanical zoning, Ton district belongs to desert steppe with fragments of forests and spruce forests. Flora of Issyk-Kul Biosphere Reserve includes about 1,500 plant species, including about 30 species of very important wild medicinal plants. Biosphere territory has diverse and interesting fauna with numerous endangered species finding refuge in numerous uninhabited areas of region. As noted, western and eastern shores of lake serve as wintering ground for waterfowl. Estimated number of waterfowl and near-water birds is 67,000 from 29 different species. Mammals on lake consist of six orders and 34 species (including insectivores, bats, rodents, carnivores, lagomorphs and artiodactyls). Most rural population along project road depends on subsistence agriculture and livestock farming. In rural areas, agriculture is considered main industry with staple crops such as cereals and potatoes.
172. Project sections of additional roads partially pass through Issyk-Kul biosphere territory, defined by four zones: core zone; buffer zone; transition zone; and rehabilitation zone (sanitation zone).

5. Fauna.

173. The biodiversity of this area is represented by a variety of types of ecosystems. The main types of ecosystems are the desert and semi desert.
174. Desert part is inhabited by Siberian jerboa and tamarisk gerbil. In settlements, there are met house and lighter Spanish sparrows and turtledoves. Rooks, starlings and hoopoe keep close to settlements.
175. At foothills, there are field mice, Central Asian tolai hare and gray hamster. Such species of birds as Isabelline chat, black redstart, Buchanan bunting and eagle neophron inhabit in piedmont steps.
176. Following bird species listed in Red Book of Kyrgyz Republic may inhabit project area. Based on analysis of Red Book of Kyrgyz Republic, species of birds and mammals in territory of planned activity are:

- Golden eagle - *Aquila chrysaetos* (Linnaeus)
 - Snake-eagle – *Circaetus gallicus* (JFGmelin)
 - Saja – *Syrrhaptes paradoxus* (Pallas)
 - Saker falcon - *Falco cherrug* J.E. Gray
 - Turkestan tjuvik – *Accipiter badius* (JFGmelin) – according to the Biosphere Directorate (monitoring, spring 2015, volume - 2, migration).
177. Main species of Red Book are mainly found in mountainous areas. Given high anthropogenic pressure on foothills, where road section is located, these species were not found. Thus, risks of wild fauna colliding with cars on road are apparently lower.
178. Study was conducted based on technical discussions with Directorate of Issyk-Kul Biosphere Territory, during which monitoring data were presented; along with discussions with renowned biologists such as Erik Shukurov and Sergey Kulagin, data were supplemented by literature review (Red Book of Kyrgyz Republic, Physical Geography of Kyrgyz Republic, Atlas of Kyrgyz Republic, etc.).
179. These birds belong to desert and semi-desert species; the main food or hunting for these birds is carried out in the foothills and highlands.
180. The project area is located in an anthropogenic area, so these species of birds and mammals, if present, can only be found near high mountain areas and potential negative impacts from construction activities are not expected.

Flora

181. Vegetation grows up to foothills, particularly to the elevation of 1630-1850 m, there is plain piedmont desert and is represented by the following soils: mountainous-valley, clay-colored and light-brown, absinthial gramineous vegetation. Piedmont mid-mountain steppe zone is at the elevation of 1850-2100 m, mountainous chestnut soils and black soil gramineous absinthial dry steppe, tallgrass meadow steps. Rare absinthial-saltwort vegetation. Grasslands and sometimes bally crops could be met only at the outlet of mountainous valleys on alluvial cones watered by brooks. Soils are represented by poor brown soils, rarely by gray soils where sod-grass grow: feather grass sheep (*Stipa*), fescue, *Koeleria* as well as *Astragalus* and sub-shrubs, eurotia (*Krascheninnikovia ceratoides*), tansy (*Tanacetum*) and barbed caragana (*Caragana spinosa*).

Biosphere Reserve, Zoning, and Protected Areas.

182. As of February 2011, the Protected Areas within Kyrgyzstan have an agglomerated area of 1,189,507 hectares, which is 6.3% of the country's total area. These Protected Areas are composed of:
- 10 – 10 – Strict Nature Reserves (IUCN Category I),
 - 9 – Nature National Parks (IUCN Category II),
 - 19 – Natural Monuments (IUCN Category III),
 - 49 – Habitat/Species Management Areas, thereof:
 - 23 - Botanical Reserves,
 - 10 - Forest Reserves,
 - 14 - hunting grounds,
 - 2 – Complex Reserves (IUCN Category IV).

183. Nature Reserves (IUCN Category I) established for nature conservation and scientific research prohibit any economic activity violating natural complexes. Additionally, Issyk-Kul Biosphere Territory (established in 2000) has status of protected area of national significance. By Ministerial Decree, Issyk-Kul Protected Area was set up for: (a) conservation, reproduction and management of natural ecosystems with rich natural and cultural heritage; (b) recreational use; and (c) long-term ecological control, monitoring, research and education
184. Ramsar Convention was signed by former Soviet Union in 1970s and subsequently in 1976; Issyk-Kul Nature Reserve was designated as wetland of international importance. Government directive from January 2000 regulates activity of Issyk-Kul Biosphere Reserve Directorate (BRD). In September 2001, by decision of United National Educational, Scientific and Cultural Organization (UNESCO), Issyk-Kul Biosphere Reserve became number 411 on list of world biosphere reserves. Issyk-Kul Biosphere Reserve coincides with borders of Issyk-Kul Region. In March 2003, with independent Kyrgyzstan this designation was reinstated following ratification by Parliament on 10 April 2002. Succeeding, former Issyk-Kul preserves have been registered as Ramsar sites with information needing to be updated with secretary of Ramsar Convention
185. To pursue and maintain sustainable development objectives in biosphere reserve, zones have been designated with separate preservations and use. Goals for protection and development differ from zone to zone, as do standards for use. In defining zones, consultations were done with related government and non-governmental participants, Issyk-Kul Biosphere Reserve, in accordance with UNESCO requirements. These zones consist of core, buffer, transition and rehabilitation zones. Zoning has major implications on future development of region. Goals for protection and development differ by zones, as do standards for use. Table 7 summarizes zones and their description
186. Ensuring Biosphere Reserve is not affected by Project activities, subcomponents have been suitably located and Project ensures intended activities comply with designations: (i) Balykchy, landfill is in zone for “sanitation”; (ii) Cholpon-Ata, landfill is within transition zone, on land proposed for “extensive development”. Main theme in these areas is for development of existing and proposed land use and designated for improvement and sanitation; and (iii) Karakol, landfill is in transition zone, similar to one in Cholpon-Ata. Characteristics of each zone are summarized in Table 7.

Table 7. Zoning Criteria for the Issyk-Kul Biosphere Reserve.

| Zone | Sites | Description | Content |
|-----------|----------------------------|---|---|
| Core Zone | Glaciers | Primary source of water retreat/shrinkage Monitoring of changes in ecosystems, scientific research, other activities that do not disturb natural processes Stringent protections for the entire natural complex | Stringent protection for the entire natural complex |
| | High mountain areas | Snow leopard habitat (3,000-4,000 m asl) Mountain goat habitat (largest concentration here) | |
| | Lakes | Habitat for rare waterfowl, fish, primary source of water resources | |
| | Forests and brush lands | Limited supply; Wildlife habitat | |

| | | | |
|----------------------------|---|--|--|
| | Existing reserves, preserves and national parks | Charged with environmental protection Legal guarantees in place | |
| Buffer Zone | Natural and historic sites | Scientific research sites | Usually surrounds or borders core zone |
| | Development of ecotourism | Traditional uses with extensive forms of economic activity, including regulated use of agricultural land, controlled tourism, various forms of scientific research | |
| | High-mountain summer pasture | Infrequent winter wildlife habitat | |
| | Forests and brush lands (near settled areas) | Use crucial to local economy | |
| | Natural sites near residential areas | Environmental education sites, Scientific research and Ecotourism | |
| Transitional Zone | Agricultural lands, including summer and economic winter pastures | Primary source of agricultural products for local consumption | Environmentally oriented activity |
| | Settled areas (towns, villages) | Population centers Economic centers | |
| | Certain sections along shores of major lakes | Fisheries/fish farms Development of ecotourism | |
| Rehabilitation Zone | Abandoned mines | Damaged ecosystems | Areas have suffered environmental damage and require restoration |
| | Other damaged sites | Subject to improvement | |

187. Furthermore, from Regulation Biosphere Territory "Issyk-Kul" (24 January 2000, amended 5 November 2002, 28 June 2005, 19 September 2006) under III. Territorial Division and Zoning.
188. Rehabilitation area includes anthropogenically disturbed areas that require regeneration and remediation measures (mineral deposits, tailings, **highway RoW**, settlements, degraded land, stock trails and resting areas)."
189. Consequently, the project sections of additional roads are considered part of the Rehabilitation Zone (rehabilitation).

Naryn region, Kochkor district.

190. The Naryn region is considered rich in flora and fauna. Some of the main species are the relict blue spruce of the Tien Shan, herbs: SIEE buckthorn, ephedra, St. John's wort, yarrow, valerian, rose hips and many others. There are nature reserves in the region: Narynsky and Karatal-Zhapyryksky nature reserves, protected hunting grounds: Kochkor, At-Bashi, Ugutskoye, etc.

Flora.

191. The area of the Kochkor (64 km) to Epkin (89 km) section is arable irrigated land in place of steppes and deserts. According to the geobotanical division, the territory belongs to the province of the inner Tien Shan.
192. Vegetation types: Desert: hawthorn, cushion, turf steppe, high meadows, cryophilic cushion; swamps, spruce forests, broad-leaved forests: deciduous shrubs; juniper. Large areas are covered by plant communities with sparse vegetation. Type of strips - desert steppe with fragments of forests and meadows.
193. Main plant species: *Sympegma regeli*, *Salix acutifolia*, *Hippophae rhamnoides*, *Geranium regelii*, *Geranium himalayense*, *Kalidium cuspidatum*, *Reaumuria soongorica*, *Acantholimon alatavicum*, *Artemisia tianschanica*, *Stipa caucasica*, *Festuca sulcata*, *Phlomis oreophila*, *Carex stenocarpa*. Medicinal plants include Begger's rose, loose rose, and Ural licorice.

Fauna.

194. The territory of the project road is a desert and semi-desert. According to geographical zoning - intra-Tian Shan mid-mountain. Characteristic types of this territory:
 - (i) (i) Reptiles: Desert Eye, Lizards, Arrowhead Snake, Common Copperhead;
 - (ii) Birds: Little Owl, Mongolian Plover, Little Lark, Tree Pipit, Wheatear, Black Redstart, Rock Nuthatch, Desert Finch, Ruddy Shelduck (on water bodies), Bearded Partridge, Chukar Partridge (in open habitats), Common Turtle Dove, Black-bellied Sandgrouse is a passing bird;
 - (iii) animals: greater horseshoe bat, pointed-eared bat, tolai hare, gerbils, steppe polecat, stone marten, gray marmot, muskrat (in water bodies)

Desertification.

195. In December 1997, Kyrgyz Republic acceded to UN Convention to Combat Desertification, ratified in mid-1999. Desertification is defined in Convention as land degradation in arid, semi-arid, dry and sub-humid areas, resulting from various factors, including climate change and human activity. According to this definition, approximately 90% of Kyrgyzstan's agricultural land can be categorized as prone to desertification. Of 10.6 million hectares of agricultural land, most used for pasture, about 74% is in some stage of desertification.
196. On average, there is 0.35-0.2 hectares of irrigated arable land per capita in the north of the republic, and 0.04-0.05 acres in the south, which is clearly insufficient to maintain food source of Kyrgyz Republic. As a result, socio-economic situation in country has worsened. Although area of actually irrigated land is about 1 million hectares, almost half of it is dehumified, compacted, chemically degraded and polluted. Pasture degradation in form of erosion has affected approximately 4.5 million hectares, or half of entire territory occupied by pastures. Soil compaction caused by grazing of large livestock has accelerated soil erosion in pastures located on steep slopes. Wind erosion is typical for non-irrigated pastures and meadow pastures located in lower reaches. Chernozem is compacted in humid conditions, losing its ability to infiltrate and is more easily washed away. Erosion is aggravated by cultivation of meadow grasses on fragile and steep slopes. Often such fields are plowed longitudinally towards slope, accelerating erosion and formation of gullies. Overgrazing, a major problem in the Kyrgyz Republic, causes severe deterioration of pastures, resulting in a loss of agricultural

productivity. Therefore, during road reconstruction work, all attention should be paid to preventing the creation of conditions for desertification of new areas.

197. Increase in population and orientation towards higher living standards are causing increasing pressure on land and water resources, forming basis of agricultural production, year by year. Majority of Kyrgyz people live in rural areas and directly or indirectly depend on land productivity. Therefore, it is especially important to ensure preservation and increase of land productivity.

Endogenous and exogenous processes.

198. Seismic hazard. According to the seismic zoning of the territory of the Kyrgyz Republic, the area of the project sections of additional roads belongs to the 8-point seismic zone (according to SNiP KR 20-02:2009).
199. Mudflow hazard. In the Issyk-Kul region, where mudflows and floods can intensify during the flood period lasting throughout the summer on the region's major rivers, the peak of the flood occurs in July. In foothill and dissected areas, mudflows can occur one or more times a year.
200. Mudflow hazard. Mudflows of rainfall origin may occur in the rural area of Kok-Zhar, threatening houses, bridges, roads and canals. Mudflows may occur once every two years or less frequently in most of the mountainous territory of the district. Mudflows of rainfall origin may occur in April-September, most likely in May-July.

Labor and Economic Resources.

Population.

201. Kyrgyz Republic is a sparsely populated country. Permanent population as of early 2018 was 6,257,000 people, while resident population was 6,002,000. One third of permanent population (33.9 percent) lived in urban areas and two thirds (66.1 percent) in rural areas. Population density averaged 31 persons per square kilometer. Population dynamics are influenced by natural growth shaped by birth and death rates, as well as migration. Since migration balance is still characterized by higher emigration than immigration, population growth is ensured only by natural increase. In 2017 population growth rate was 1.9 percent, which by global standards is considered rather high. An important characteristic of the population is age distribution across pre-working, working, and post-working age groups. As of early 2018, pre-working age population made up 33.9 percent.
202. Children and adolescents accounted for the majority of population, 58.6 percent were of working age, and 7.5 percent were older than working age.
203. Due to emigration and differences in natural reproduction levels, national composition of population changed. Share of Kyrgyz, Uzbeks and other groups increased, while share of Russians, Ukrainians, Belarusians, Jews, Germans and others declined. However, despite significant emigration in the 1990s and early 2000s, representatives of all ethnic groups historically residing in the country have been preserved. More than 100 nationalities live in the country; the largest as of late 2016 were Kyrgyz – 4,493,000 people (73.2 percent of total population), Uzbeks – 898,000 (14.6 percent), and Russians – 357,000 (5.8 percent).
204. Additional roads to be repaired are located outside of residential areas

Social Infrastructure.

205. Kyrgyz Republic is one of poorest and least industrialized countries in Europe and Central Asia (ECA) Region: Gross Domestic Product (GDP), calculated by production method, according to preliminary estimates, in 2017 amounted to 493.3 billion soms, an increase of 4.5 percent compared to 2016. However, literacy rate remains high, as in other countries of former Soviet Union, and accounts for 99% of people aged 15 years and above (2009).
206. Poverty level in 2016, calculated based on consumer spending, was 25.4 percent in country as a whole, down 6.7 percentage points from previous year. General poverty line value in 2016 was 31,151 soms per capita per year, and extreme poverty line was 17,052 soms. Poverty level in rural areas decreased by 4.6 percentage points, and in urban areas by 10.7 percentage points. In 2016, 1 million 557 thousand people lived below poverty line, of which 74.0 percent were residents of rural settlements.

Table 8. Main socio-economic indicators (Kyrgyz Republic).

| | 201 6 | 201 7 |
|---|---|----------|
| 1 | Permanent population (million people) | 6.25 |
| 2 | Rural population growth (thousand people) | 120.7 |
| 3 | GDP (thousand soms) | 493322.0 |
| 4 | GDP: | |
| 5 | Agriculture | 1 2.8 |
| 6 | Industry and Construction | 2 6.5 |
| 7 | Services | 4 7.5 |
| 8 | per capita, soms | 83004.7 |
| 9 | in % to the previous year | 102.7 |

Source: NSC. Statistical collection "Information bulletin of the Kyrgyz Republic on food security and poverty"

207. Official statistics show that poverty levels are uneven across the country.

Agriculture and industry.

208. Agriculture is main area of employment in Kyrgyz Republic, accounting for almost a quarter of country's total GDP. As of January 1, 2018, more than 429 thousand operating economic entities in agriculture, forestry and fisheries were registered in republic. Of these, about 323 thousand, or 75.4 percent, were peasant (farm) households, 105 thousand entities, or 24.6 percent, were individual entrepreneurs engaged in agricultural production. Gross output of agriculture, forestry and fisheries in 2017 in republic as a whole amounted to 208,530.0 million soms. Chui region accounts for 65.5 thousand, or 15.3 percent of economic entities.

Transport and road accidents.

209. Well-functioning transport sector is very important for Kyrgyz Republic due to mountainous terrain of this continental country, both from economic and socio-political point of view.
210. Development of transport sector is very important for continental Kyrgyz Republic, as it will help provide cost-effective access to regional and domestic markets. Development of transport sector will also contribute to creation of jobs and development of service sectors throughout country.

Cultural and historical monuments, random archaeological finds.

211. Site survey did not identify any sensitive adjacent monuments of historical or cultural significance. Major road sections of project will be carried out within existing road strip, without



changing road category (existing roads belong to categories III and IV), without straightening road sections.



212. Occasional archaeological finds may be discovered during construction work. If any signs of historical and cultural heritage objects are detected (human and animal bones, fragments of ceramics, etc.), construction work on this site will be stopped.
213. Contractor will inform CSC and PIU of Ministry of Culture, Information, Sports and Youth Policy of Kyrgyz Republic about discovery of archaeological finds. In turn, State Research Unit of Ministry of Transport and Culture of Kyrgyz Republic will send official information about discovered finds to Ministry of Culture, Information, Sports and Youth Policy of Kyrgyz Republic.
214. Local specialist archaeologist will be brought in to study archaeological find and carry out “archaeological rescue work” (local specialist must have appropriate permission from Ministry of Culture and Nature Protection of Kyrgyz Republic to carry out such work.
215. Resumption of repair work on this site will be possible only after receiving the relevant conclusion of a local archaeologist, which must be confirmed by the Ministry of Culture, Information, Sports and Youth Policy of the Kyrgyz Republic.

Route sheet.

216. Following route sheet provides overview of sensitive areas and sensitive receptors along additional road sections. Route sheet serves as basis for subsequent impact analysis.

Table 9. Route sheet.




| No | Location | Problem/Figure | Baseline indicators June 2024 |
|--|--|--|---|
| Lot 1. Balykchy - Kochkor (km 0 + 000 - km 43 + 000) | | | |
| 1 | Section Kyzyl Ompol - Ak Olon L = 12.28 km. | <p>Several households located at end of highway at km. 11+920 LHS</p>  | <p>Noise , vibration , SO 2 NO 2 CO dust</p> <p>Baseline measurements along Project Road using portable instruments</p> |
| | | <p>Intersection with an irrigation watercourse at km. 10+280</p>  | <p>Transparency suspended solids, BOD 5, petroleum products</p> |



| No | Location | Problem/Figure | Baseline indicators June 2024 |
|--|--|---|---|
| 2 | Balykchy town entrance to Ministry of Emergency Situations, L = 1.66 km. | Several houses located along the road at km 1+100  | Noise , vibration , SO 2 NO 2 CO dust |
| 3 | Balykchy city visit to houses, L = 0.44 km. | Access to houses, end of project section of additional road, km, 0+440  | Dust , noise , vibration , SO 2 NO 2 CO |
| Lot 2. Kochkor-Epkin (km 62+400 – km 89+500) | | | |

| No | Location | Problem/Figure | Baseline indicators June 2024 |
|----|------------------------------|--|--|
| 1 | Tendik-Roundabout, L =2.9 km | <p>Water intake structures RHS</p>  | <p>Dust , noise , vibration , SO 2 NO 2 CO</p> |
| | | <p>Cemetery of Tendik v. LHS (km. 2+700-2+880)</p>  | <p>Vibration</p> |

| No | Location | Problem/Figure | Baseline indicators June 2024 |
|----|---------------------|---|----------------------------------|
| 2 | Kum Dobo - Komsomol | Cemetery at km. 5+800  | Vibration |

| No | Location | Problem/Figure | Baseline indicators June 2024 |
|----|----------|---|--|
| | | <p data-bbox="521 310 776 338">Koshary, km 15+000,</p>  <p data-bbox="521 898 1105 926">Cemeteries at km 16+800-17+100 along the road</p>  | <p data-bbox="1279 310 1398 485">Noise , vibration , SO 2 NO 2 CO dust</p> |

| No | Location | Problem/Figure | Baseline indicators June 2024 |
|----|--|---|---|
| | | Irrigation water pipeline crossing road  | Transparency suspended solids, BOD ₅ , petroleum products |
| 3 | Kum Dobo – Shamshy – Saralasaz, L = 3.86 km | Irrigation canal crossing road at km 1+400 C  | Noise , vibration , SO ₂ NO ₂ CO Dust Transparency suspended solids, BOD ₅ , Petroleum products |
| 4 | Communism- Ortok, L =0.8 km | Irrigation water pipeline crossing road  | Transparency suspended solids, BOD ₅ , Petroleum products |

| No | Location | Problem/Figure | Baseline indicators June 2024 |
|----|---|---|--|
| | | <p>One household is on RHS of road at end of section, at distance of 100 m.</p>  | <p>Noise, vibration, SO 2 NO 2 CO Suspended solids</p> |
| 5 | <p>Road to the village of Cholpon, L =0.41 km</p> |  <p>Background monitoring of environmental quality to monitor impact of construction work on environment</p> | <p>Noise, vibration, SO 2 NO 2 CO Suspended solids</p> |

Basic Indicator Measurements.

217. In accordance with the above road statement, baseline environmental parameters were measured in 2024.

Air Quality Measurements.

218. Results of measurements will serve as reference values for monitoring during construction phase. Air quality measurements were taken at 10 locations (Table 10) along road, identified as areas sensitive to air pollution due to proximity of sheepfolds, individual households, cemeteries

Table 10. Air sampling locations

| No. | Item Number and Location |
|-----|---|
| 1 | 273 – Balykchy entrance to houses, km 0+440 |
| 2 | 274 – Balykchy entrance to the Ministry of Emergency Situations, km 1+100 |
| 3 | 275 – Kyzyl Ompol – Ak Olon, km. 11+940 (0+340) |
| 4 | 276 – Shamschy village km 1+400 |
| 5 | 277 – Osviakhim village km.5+000 (Kum Dobo – Komsomol) |
| 6 | 278 – Kum Dobo – Komsomol, km 15+000 |
| 7 | 279 – Kum Dobo – Komsomol, km 17+000 |
| 8 | 280 – Cholpon village, km. 0+410 |
| 9 | 281 – village Tendik km. 0+000 |
| 10 | 282 – Communism - Ortok |

219. The measurements were carried out in June 2024 in accordance with the requirements of RD 52.04.186-89 "Guidelines for the control of atmospheric pollution". Methods for determining the dustiness of gas and dust flows", Operating Manual YAVSHA 413311.012 RE, IBYaL 416143004 RE, IBYaL 413411.042 RE.³

220. According to laboratory analysis, background indicators are within the established norms at all sampling points, except for the nitrogen dioxide indicator. The excess of nitrogen dioxide was from 1.35 to 2.2 times higher than the established MAC norm. (Table 11).

Water quality measurements.

221. Sampling was carried out in June 2024 in accordance with GOST 31861 - 2012. Water. General requirements for sampling. PND F 12.15.1 - 08. Guidelines for sampling for wastewater analysis. Laboratory analyzes were carried out according to the test method SEV part 1.M.1977 *, PND F 14.1:2:3.110-97, PND F 14.1:2:3:4.123-97, PND F 14.1:2:4.128-98,

222. On project sections of 8 additional access roads there are in total 5 irrigation streams (seasonal watercourses). Results of measurements will serve as reference values for water quality monitoring during construction stage. Water sampling and quality analysis were defined at 4 points:

Irrigation ditch in Ak Olon section (Kyzyl Ompol – Ak Olon)

Irrigation ditch in Komsolol section (Kum Dobo – Komsolol)

Irrigation canal in Shamschy section (Kum Dobo – Shamschy – Saralasz)

Irrigation canal (Kommunizm – Ortok)

However, water samples were taken and analyzed at 2 points only, since in the remaining 2 points there was no water at the time of monitoring (Table 12).

³Analysis method:

1) Portable gas analyzer PGA-200. Operating manual YAVSHA 413311.012 RE;

2) Guidelines for air pollution control RD 52.04 186-69;

3) IKHF-V3 meter. Operating manual IBYAL 416143004 RE.

Table 11. Air quality within 100 m of the impact corridor in 2024 (mg/m3).

| | Location | Coordinates | SO ₂ | NO ₂ | CO | TSP |
|---|---|------------------------|-------------------|----------------------------|------------|----------------|
| 1 | Balykchy check-in to houses | 42.439062 76.155252 | 0.085 ± 0.0 1 | 0.155 ± 0.028 | 0.8 ± 0.16 | 0.166 ± 0.042 |
| 2 | Balykchy visit to the Ministry of Emergency Situations, km. 1+100 | 42.432398 76.150155 | 0.092 ± 0.011 | 0.188 ± 0.034 | 0.8±0.18 | 0.166 ± 0.042 |
| 3 | Kyzyl Ompol – Ak Olon, km. 11+940 (0+340) | 42.321169 76.234647 | 0.073 ± 0.009 | 0.14 ± 0.025 | 1.1±0.22 | 0.333±0.083 |
| 4 | Shamshy village km 1+400 | 42.276827 75.498294 | 0.085 ± 0.01 | 0.115 ± 0.0 2 8 | 1.4 ± 0.28 | 0.16 6 ± 0.042 |
| 5 | Kum Dobo – Komsomol, km 5+000 (Osviakhim village) | 42.221998 75.467783 | 0.058 ± 0.0 07 | 0.126 ± 0.023 | 1.1 ± 0.22 | 0.25 ± 0.063 |
| 6 | Kum Dobo – Komsomol, km 15+000 | 42.232000 75.358639 | 0.09 ± 0.0 11 | 0.158 ± 0.029 | 1.4 ± 0.28 | 0.166 ± 0.042 |
| 7 | Kum Dobo – Komsomol, km 17+000 | 42.234974 75.331727 | 0.085 ± 0.0 1 | 0.130 ± 0.023 | 1.6 ± 0.32 | 0.250 ± 0.063 |
| 8 | Cholpon village, km. 0+410 | 42.191875 75.474673 | 0.114 ± 0.0 14 | 0.122 ± 0.022 | 1.2 ± 0.24 | 0.166 ± 0.042 |
| 9 | village Tendik | 42.188991 75.696825 | 0.011 ± 0.0 13 | 0.166 ± 0.030 | 1.7 ± 0.34 | 0.250 ± 0.063 |
| | MPC | | 0.5 | 0.085 | 5.0 | 0.5 |

Source: Results of measurements by the Department of Environmental Monitoring under the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic in 2024.

Table 12. Water quality indicators at selected points in 2024 (mg/l).

| Location | Coordinates | Transparency, cm | Weighed substances, mg/l | Biochemical oxygen demand BOD ₅ , mgO/l | Petroleum products, mg/ m ³ |
|---|------------------------|------------------|--------------------------------|--|--|
| Irrigation ditch on the Ak Olon section (Kyzyl Ompol - Ak Olon) | 42.320927 76.216836 | 36 | 3.4 ± 1.02 | 1.04 ± 0.28 | 0.47 ± 0.016 |
| Irrigation ditch on the Komsomol section (Kum Dobo - Komsomol) | 42.233403 75.353214 | 38 | 3.2 ± 0.96 | 1.16 ± 0.30 | 0.046 ± 0.016 |
| MPC | | - | Increased 0.25/0.75 | 4.0 | 0.3 |

Source: Results of measurements by the Department of Environmental Monitoring under the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic in 2024.

Noise level measurements.

223. Existing levels of external noise within project sections of additional roads are mainly related to traffic and construction work. Results of all measurements taken exceed permissible standards, both at night and during day. In populated areas located along road, there is noise emanating from road. Given width of RoW on project section, significant noise impacts (if any) on these residential areas can be easily avoided.

Results of noise level measurements.

224. The noise level was measured by ProfiLAB LLC in March 2024 using an Oktava 101A No. 04A445 noise meter, which was calibrated in August 2023. All measurements were carried out in accordance with GOST 20444-2014. Traffic flows. Methods for determining noise characteristics., GOST 32847-2014 Public roads. Requirements for environmental surveys. According to Table 13, the noise level is within the norm at the measurement points.

Table 13. Results of current noise measurements along road sections from June 6, 2024.

| No. | Noise measurement points | Coordinates | Noise level (dBA) | Maximum permissible level (MAL) |
|-----|--|------------------------|-------------------|---------------------------------|
| 1 | Balykchy, access to houses km. 0+440 | 42.439062 76.155252 | 55 | 55 |
| 2 | Balykchy, Ministry of Emergency Situations km. 0+800 | 42.435076 76.150349 | 48 | 55 |
| 3 | Balykchy, Ministry of Emergency Situations km. 1+100 | 42.432398 76.150155 | 50 | 55 |
| 4 | Kyzyl Ompol – Ak Olon, km. 11+945 (0+340) | 42.321169 76.234647 | 50 | 55 |
| 5 | Kyzyl Ompol – Ak Olon, km. 10+285 (2+000) | 42.320927 76.216836 | 57 | 55 |
| 6 | Shamshy village km 1+400 | 42.276827 75.498294 | 55 | 55 |
| 7 | Osviakhim village km.5+000 (Kum Dobo – Komsomol) | 42.221998 75.467783 | 44 | 55 |
| 8 | Cholpon village, km 0+410 | 42.191875 75.474673 | 58 | 55 |
| 9 | With. Ortok (Communism - Ortok) km. 0+320 | 42.171572 75.37136 | 62 | 55 |
| 10 | With. Ortok (Communism - Ortok) km. 0+700 | 42.175008 75.370723 | 41 | 55 |
| 11 | Kum Dobo – Komsomol, km 17+000 | 42.234974 75.331727 | 52 | 55 |
| 12 | Kum Dobo – Komsomol, km 15+000 | 42.232000 75.358639 | 57 | 55 |
| 13 | Tendik village – Roundabout, km. 2+900 | 42.188991 75.696825 | 57 | 55 |
| 14 | Tendik village, km. 0+000 | 42.188991 75.696825 | 63 | 55 |

225. Conclusion: Results of instrumental measurements show background noise level on six sections of additional roads exceeds maximum permissible level and does not meet requirements of Sanitation and Epidemic Department 2.1.8.562-96 “Noise in workplaces, residential premises,

public buildings and on territory of residential development”. Basis: SN 2.2.4/2.1.8.562-96 “Noise in workplaces, residential premises, public buildings and on territory of residential development.”

Vibration measurement.

226. Vibration level measurements in June 2024 were also performed by ProfilAB LLC using the Ecophysics-110A device, No. 04AB 130044, which was calibrated in March 2024. Calibration certificate number No. K0037 – 0503/24. All measurements were carried out in accordance with GOST 31319-2006. “Vibration. Measurement of general vibration and assessment of its impact on humans. Requirements for measurements at workplaces.” GOST 12.1.012-2004. Sanitary standards 2.2.4./2.1.8.566-96. “Industrial vibration in premises, residential and public buildings”/ GOST ISO 8041-2006.

227. According to Table 14, vibration level is within normal range at measurement points

Table 14. Results of vibration measurements along road sections from June 10, 2024.

| No. | Noise measurement points | Coordinates | Noise level (dBA) | Maximum permissible level (MAL) |
|-----|--|------------------------|-------------------|---------------------------------|
| 1 | Balykchy, access to houses km. 0+440 | 42.439062 76.155252 | 84 | 110 |
| 2 | Balykchy, Ministry of Emergency Situations km. 0+800 | 42.435076 76.150349 | 83 | 110 |
| 3 | Balykchy, Ministry of Emergency Situations km. 1+100 | 42.432398 76.150155 | 91 | 110 |
| 4 | Kyzyl Ompol – Ak Olon, km. 11+945 (0+340) | 42.321169 76.234647 | 95 | 110 |
| 5 | Kyzyl Ompol – Ak Olon, km. 10+285 (2+000) | 42.320927 76.216836 | 90 | 110 |
| 6 | Shamshy village km 1+400 | 42.276827 75.498294 | 93 | 110 |
| 7 | Osviakhim village km.5+000 (Kum Dobo – Komsomol) | 42.221998 75.467783 | 91 | 110 |
| 8 | Cholpon village, km 0+410 | 42.191875 75.474673 | 95 | 110 |
| 9 | With. Ortok (Communism - Ortok) km. 0+320 | 42.171572 75.37136 | 92 | 110 |
| 10 | With. Ortok (Communism - Ortok) km. 0+700 | 42.175008 75.370723 | 91 | 110 |
| 11 | Kum Dobo – Komsomol, km 17+000 | 42.234974 75.331727 | 94 | 110 |
| 12 | Kum Dobo – Komsomol, km 15+000 | 42.232000 75.358639 | 95 | 110 |
| 13 | Tendik village – Roundabout, km. 2+900 | 42.188991 75.696825 | 87 | 110 |
| 14 | Tendik village, km. 0+000 | 42.188991 75.696825 | 86 | 110 |

228. **Conclusion:** The results of instrumental measurements showed that the vibration level is not constant, but does not exceed the norm for low and medium frequency vibration.

V EXPECTED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

229. Based on legislation, results of field surveys and characteristics of Project, environmental impacts have been identified and appropriate mitigation measures prepared. Since Project involves rehabilitation of existing road and there are no protected areas within Project influence area, it is expected that environmental impacts will mainly occur during construction phase. Most serious impacts are related to human habitat, particularly noise levels, emissions of pollutants, especially where Project sections of additional roads pass near sensitive receptors of impact, such as schools, hospitals, mosques, bazaars, etc. In general, main categories of impacts arise from following types of activities: (i) construction activities within or near populated areas entail noise impacts, emissions of pollutants into air and vibration, which is of particular importance where Project sections of additional roads pass near sensitive receptors of impact; (ii) site clearance activities involve removal of soil and vegetation; additional impacts relate to: (iii) impacts resulting from rehabilitation of bridges; (v) potential impacts on surface waters. Detailed description of impacts is provided in following sections. Impacts have been divided into following types: impacts during design phase, impacts during construction phase and impacts during operational phase.

Design Stage.

Physical environment.

230. Large number of potentially significant impacts can be avoided by proper planning/preparation of works, including ensuring key environmental provisions are included in contract documents, providing SIEE and SSEMP to contractor and other relevant authorities, holding appropriate information meeting and training on implementation of SSEMP. For this reason, SSEMP has defined mitigation measures, most important of which are proper distribution of assessment documents, inclusion of environmental standards/specifications in tender documents, training on environmental protection measures for CSC and contractor, preparation of tree management and felling plan that will avoid unwanted felling of trees, followed by planting and care of new seedlings.
231. **Quarry development.** It is planned to use existing quarry areas used within framework of main project. Contractor's work on quarry areas must be carried out in compliance with mandatory procedures stipulated by provisions of Kyrgyz Republic. Monitoring of work performed will be carried out by CSC and PIU MOTC KR.
232. **Construction Materials Transportation Route Plan.** Movement of construction materials will be carried out primarily by trucks from quarries and aggregate plants to temporary asphalt storage areas. Transportation of construction materials by trucks will have significant impact on local communities. CSC will monitor roads used by contractor equipment (frequency of dust suppression, speed limits) to minimize dust generation. Any roads passing through residential areas will only be used at certain times, i.e. between 07:00 and 18:00.
233. **Training on the Implementation of Environmental Protection Measures.** CSC will continue to employ full-time environmental specialist to monitor environmental conditions at sites, implement SIEE, SSEMP and monitor compliance with environmental provisions specified in contract specification. This requirement also applies to contractor and all inspectors at site. CSC will conduct additional training for contractor's staff on implementation of SSEMP and monitoring. This training will be conducted at pre-construction stage.

Ecological environment

234. Impact on environment is minimal as design work will be carried out within existing road boundary, without changing category of roads. There are no permanent surface watercourses on design sections of road. On Lot 1, design sections of additional roads partially pass through territory of biosphere zone of Lake Issyk-Kul in rehabilitation (sanitation) zone, i.e. anthropogenically disturbed lands. Along entire length of design road to Lot 2 within 500 meters on both sides there are no specially protected areas or places with biological diversity.
235. It is anticipated that most impacts from road project will arise directly from construction activities, with some impacts occurring during operation.
236. Impacts during construction phase include: noise, vibration, emissions of pollutants into atmosphere, particularly important in populated areas where sensitive receptors such as schools, hospitals, mosques, etc. are located; impacts on watercourses and rivers; impacts on soil and vegetation, including trees near Project Roads, due to site clearance work; impacts resulting from rehabilitation of artificial structures.
237. Avoidance of impacts may be due to contractor strictly following requirements specified in SSEMP, proper planning of construction works, including during construction of artificial structures.

Social environment.

238. Social environment issues at this stage concern the provision of rational design solutions to local population, as well as consideration of possibility of involving residents living along road. The following are considered most important issues:
239. **Access Management Process During Major Road Repairs** – Any project involving rehabilitation in form of replacing existing old asphalt of road, loosening and compacting existing roadbed, rehabilitation of culverts will require closure of road lanes and restriction of access for residents for certain period of time. To minimize these inconveniences, CSC together with Contractor will maintain constant contact with v. administration to inform local population about repair work being carried out on roads, organizing temporary bypass routes to ensure movement of vehicles, pedestrians and livestock. Contractor must take all necessary measures to ensure road safety during period of rehabilitation of roads.

CONSTRUCTION PHASE.

240. SSEMP tables list potential impacts during construction period, mainly focusing on control of air emissions and noise levels through monitoring, proper earthworks management system, waste and good housekeeping practices by contractor, including handling of fuel and lubricants, removal of construction waste from project sites, and health and safety practices for contractor's workforce. Main points of EMP are detailed below.

Physical environment.

(a) Air Quality, Noise and Vibration.

241. Impacts on air quality during construction will occur from a variety of sources. These sources include exhaust from construction equipment, dust generated during construction activities, transportation of construction materials, and material unloading areas.
242. Noise level from construction works will be significant, as entire existing roadbed will be removed by excavation with heavy construction equipment mounted on excavators (noise level approximately 89-90 dBA at 15 m from work site), but it will be temporary and will come from operating construction equipment. Summarizing results of instrumental monitoring, it is expected that: (w) during construction period there will be temporary impact from noise of operating equipment, which will be temporary in nature; (w) after completion of construction works and laying of new asphalt (porous asphalt; pores >15% 0/11) level of operational noise from vehicles will decrease.
243. Main part of road section is outside populated areas. In places where there is compaction of road surface, it will be carried out without use of vibration. To achieve high-quality compaction, number of roller passes will be increased.
244. To reduce emissions from construction equipment, contractor will implement following mitigation measures: (i) maintain construction equipment to keep it in good condition and avoid idling engines as much as possible; (ii) prohibit use of machinery or equipment that is source of excessive pollution (e.g. visible exhaust gases); (iii) contractor must use low emission construction equipment, and (iv) any vehicle on construction site must be switched off if not in use or left unattended for more than 3 minutes.
245. Negative impacts of noise exposure can be reduced by limiting construction work from 06:00 AM to 07:00 PM in populated areas, as well as by limiting transportation of construction materials through populated areas. Monitoring of noise exposure during construction is carried out in accordance with provisions of SSEMP.
246. Air quality and noise monitoring program will be implemented at sensitive receptors along this section of road, details provided in Route Report Table 9. Monitoring will be conducted quarterly to assess air quality and noise impact at each site, i.e. at location of receptor (sensitive object). Analysis will be conducted for content of: CO, NO₂, SO₂, suspended matter and noise impact level.

Surface and Ground Water.

247. **Surface waters** – Road sections cross irrigation canals, ditches, therefore, there may be potential impact on surface waters during construction. Contractor will plan work on artificial structures during period of seasonal lack of water in river and irrigation canals.

Protection and erosion of the topsoil.

248. Impacts to soils will occur as a result of site preparation and clearance. To prevent soil compaction, contractor must limit use of heavy machinery within existing road. Impacts caused by these activities are expected to be spatially limited to small strips along existing road.
249. **Quarries** – As part of planned work, contractor will use existing quarry sites developed within framework of main project. Activities to comply with environmental protection requirements will be regulated within framework of existing "Quarry Management Plan" (contractor's SSEMP approved by Ministry of Transport and Communications of Kyrgyz Republic in 2022. Appendix VI. Quarry Management Plan). Reclamation of these quarry sites will be carried out upon completion of all construction work on main project.

Table, Characteristics of Quarries.

| № | Location | Volume (m3) | Land Area (ha) | Distance from the road |
|-------|------------|-------------|----------------|------------------------|
| Lot 1 | | | | |
| №1 | km. 5+500 | 600 000 | 5,09 | 430 m |
| №2 | km. 7+100 | 164 000 | 4,1 | 122 m |
| №3 | km. 7+200 | 195 200 | 4,88 | 122 m |
| №4 | km. 9+000 | 380 000 | 7,6 | 25 m |
| | | | Boz-Barmak | |
| №5 | km. 16+600 | 1 744 000 | 43,6 | 42 m |
| №6 | km. 16+600 | 51 000 | 12,84 | 42 m |
| №7 | km. 16+600 | 113 000 | 2,83 | 42 m |
| №8 | km. 19+360 | 66 500 | 22,16 | |
| №9 | km. 20+600 | 65 600 | 1,64 | 120 m |
| №10 | km. 22+700 | 380 000 | 9,5 | 37 m |
| №11 | km. 26+800 | 488 000 | 12,2 | 80 m |
| № 12 | km. 34+240 | 245 600 | 6.14 | 325 m |
| № 13 | km. 39+450 | 164 000 | 4.1 | 520 m |
| № 14 | km 43+400 | 124 000 | 3.1 | 40 m |
| Lot 2 | | | | |
| №15 | km. 71+500 | - | 5,2 | 5 m. |
| №16 | km. 75+400 | 108 000 | 2,7 | 30 m. |
| № 17 | km.81+200 | - | 5,6 | 50 m |
| №18 | km 81+400 | 375 000 | 7,5 | |
| №19 | km 81+400 | 305 000 | 6,1 | |
| № 20 | km. 86+000 | 85 000 | 2,0 | 20 m |
| № 21 | km. 89+093 | 105 145 | 0.77 | |

250. To reduce dust formation, contractor will develop and submit for approval by CSC "Program of measures for dust suppression for 4 sites". This Program will ensure humidification of dirt roads on routes of material transportation to reduce dust pollution. Air quality monitoring will involve accurate registration of dust emissions (particulate matter) to establish compliance with Kyrgyz standards and specifications of SSEMP. Currently, along entire length of main project site, there is asphalt concrete pavement, allowing involvement of about 6 units of water trucks to carry out dust control work.

Asphalt plants, stone crushing plants, concrete and asphalt mixers.

251. **Pollution from asphalt, concrete mixers and crushers** – As part of planned work, contractor will use existing production facilities (asphalt concrete plant, crushing plants). Necessary measures to comply with environmental protection requirements will be regulated within framework of SSEMP for main project.

Rehabilitation of culverts.

252. Reconstruction of water pipes at road crossings will improve current situation. CSC will monitor work performed by Contractor to ensure mitigation measures related to good contractor management practices are observed. Such measures include proper handling of fuels and lubricants, and cleaning up debris immediately after completion of construction. Timing of partial reconstruction should coincide with periods of low or no flow, i.e. from mid-May to mid-September.

253. Environmental impacts associated with this work can be minimized if culverts are properly maintained, i.e. of sufficient size and correct slope, with appropriate downstream erosion/washout protection measures. Wherever possible, culvert work will be undertaken during dry season, as temporary diversions will otherwise be required. However, some culverts provide irrigation water, which is applied according to set irrigation schedule. Contractors will need to maintain close contact with local communities to determine when work can be carried out without affecting crop growth.

254. Almost all structures will be concrete culverts, prefabricated, with each section installed on site and sealed together using a special commercially available sealant/caulk.

Recycling of building materials.

255. During major road repairs, unusable material generated on project road sections will be removed to waste areas used within framework of main project.

Table, list of spoil areas.

| No | Location | | Distance from the road (m) |
|-------|-----------|------------|----------------------------|
| Lot 1 | km 12+100 | Tash-Sarai | 100 (LS) |
| | km 40+360 | - | 30 (LS) |
| Lot 2 | km 71+640 | | 410 (LS) |
| | km 71+860 | | 1(RS) |
| | km 80+900 | | 29(LS) |
| | km 89+090 | | RS |
| | 70+180 | | 400(LS) |
| | km 71+640 | - | 12 (LS) |
| | km 71+860 | - | 12 (LS) |
| | km 80+900 | - | 70 (LS) |
| | km 89+090 | - | 60m (RS) |

Contractor Management Practice.

256. When carrying out rehabilitation of additional project roads, contractor will use existing production bases and contractor's camp, built within framework of main project. Activities to comply with environmental protection requirements at contractor's production bases and contractor's camp will be regulated within framework of existing "Contractor's SSEMP approved by Ministry of Transport and Communications of Kyrgyz Republic in 2020" developed within framework of main project.

Health and Safety.

257. To protect health and safety of workers and nearby communities, following measures will be taken: (i) Adequate medical care facilities (including first aid) at construction sites; (ii) Training of all personnel involved in construction in basic sanitation and hygiene, general health and safety issues, and specific hazards at their workplaces; (iii) Personal protective equipment for workers such as safety shoes, helmets, gloves, protective clothing, safety glasses and ear muffs in accordance with Kyrgyz legislation; (iv) Clean drinking water for all workers; (v) Adequate protection for community, including safety fences and marking of danger zones; (vi) Safe passage through construction area for people whose accommodation and access are temporarily restricted due to road construction works; (vii) Adequate drainage system in work camps to prevent standing water and puddles; (viii) Toilets and waste containers on construction sites will be emptied when full, responsibility of contractors to prevent outbreak of disease.
258. Where possible, contractor will provide temporary collection and removal of waste from construction sites to existing waste collection and removal sites used by nearby local communities.
259. Contractor will use existing qualified health and safety specialists and an environmentalist to provide training to personnel in accordance with requirements for individual work site. Before start of work, personnel will be instructed on compliance with SEMP requirements, safety precautions regarding handling and storage of hazardous substances (fuel and lubricants, oils, bitumen, paint, etc.), and maintaining equipment used clean.
260. Contractor shall provide workers with information to promote changes in individual behavior and encourage protective measures. Purpose of such information is to prevent risk of transmission of HIV and sexually transmitted diseases among construction personnel, service personnel in work camps and local communities.

Ecological environment.

261. Given that project area is located within existing road (category IV) where there are no environmental receptors, it is expected that environmental impact will be minor, other than impact from dust generation, replacement of culverts and removal of unsuitable material, which has already been discussed in detail above.

Social environment.

262. *Traffic – Impact of major road works will include temporary disruption to traffic on additional roads. Prior to commencement of works, contractor will review material prepared by Road Safety Consultant and provide relevant information to local authority, and if necessary, inform regional*

office of ODB. Information on scale and schedule of construction works, as well as any disruptions or access restrictions, will be provided to local authority. During construction, contractor will arrange for appropriate level of traffic bypassing construction works, including provision of traffic control personnel and, where necessary, road signs indicating presence of bypass road.

263. *Health, Safety and Hygiene – Construction camps are likely to impact public health. Potential for disease transmission will be exacerbated by inadequate health and safety facilities. Contractor will be required to employ health and safety specialist to address such issues directly at worksites. This specialist will liaise and work closely with surrounding communities where preventative health and safety measures are required and where Consultant proposes such measures.*
264. *Mitigation measures will include (i) availability of first aid facilities at construction sites; (ii) presence of safety and environmental specialists; (iii) training/instruction of all construction personnel in basic hygiene and health (eg HIV/AIDS and other sexually transmitted infections), public health and occupational safety issues, and specific workplace hazards before work commences; (iv) personal protective equipment for workers such as safety shoes, helmets, gloves, protective clothing, goggles and ear defenders (depending on the type and complexity of work performed); (v) provision of clean drinking water to persons; (vi) appropriate protection for the local population, including fencing and marking of hazard zones in accordance with existing laws and regulations; (vii) safe access to crossings through construction sites for people living in populated areas where access is temporarily restricted due to road construction works. .*

Operational Stage.

Physical Environment.

Air quality and noise levels.

265. Air Quality – Carrying out Rehabilitation to 8 road sections will improve the condition of the roads and significantly reduce noise from passing vehicles while driving and will also significantly reduce dust formation.
266. Road safety equipment such as street lighting, traffic lights at pedestrian crossings, cattle runs and other visual aids will be installed along the road.
267. **Noise** – A noise survey conducted in June 2024 found that noise levels along sections of the project roads exceeded KR standards (Table 14).
268. During operation, noise should be measured at locations where sensitive receptors are situated. Results of monitoring will be used for tracking and, if necessary, for implementing additional most appropriate noise reduction measures. Summarizing results of noise modeling studies, it was proposed to reduce impacts to acceptable levels during road operation through: laying new asphalt (porous asphalt; pores >15% 0/11) and reducing speed limit from 60 km/h to 50 km/h.

Soils and Erosion Control.

269. Soil erosion problems associated with road will be minor if contractor properly implements all measures specified in SSEMP during construction period and Consultant's ecologist conducts post-construction audit of mitigation measures to confirm that all mitigation measures have been and continue to be implemented.

270. MOTC will assign this work to contractor during warranty period, after road is fully operational, and then after this period, task will be transferred to MOTC Road Maintenance Institution.

VI DISCLOSURE OF INFORMATION, CONSULTATION AND PARTICIPATION.

Public consultation processes and disclosure of information.

271. On July 25, 2024, public consultations were held on all proposed 8 road sections, where environmental issues were raised and discussed. These consultations were organized by PIU of Ministry of Transport and Communications of Kyrgyz Republic, with participation from representatives of Supervision Consultant, Contractor, Village Administration, and residents.
272. During public consultations, local population was provided with information from ADB PIU and CSC regarding planned capital repair work, complaint handling procedure, environmental issues (removal of unsuitable material, dust removal of project sites, ensuring road safety and equipment security).
273. The main requests received from the local population are "to speed up repair work" and also to take into account the requirements for ensuring road safety. In particular, to apply the necessary road markings and road signs. Results of public consultations are documented in SIEE as Appendix 2.

VII GRIEVANCE REDRESS MECHANISM.

274. As part of planned work, grievance review mechanism created within framework of main project will be used to consider complaints/appeals. This allows Affected Persons to appeal any objectionable decision, practice or activity. Affected persons will be fully informed of their rights and grievance procedures, either verbally or in writing through consultations, surveys, and timing of compensation and project implementation. Steps will always be taken to prevent a complaint rather than going through lengthy refund process.
275. GRM will include aspects related to social, environmental and other safeguards issues in accordance with ADB's mandatory safeguard provisions and Kyrgyz legislation.

Grievance Redress Group (GRG).

276. In 2017, as part of main project, GRG was created (by order of Ministry of Transport and Communications of KR (formerly MT&D KR) dated July 12, 2017 No. 234), which continues to function to present day. Task of GRG includes all activities necessary to discuss complaints, assess their validity, assess scale of possible impact, resolve issues about possible compensation and give instructions on work of grievance mechanism / facilitate its work. Updated composition of "Group for consideration of citizens' appeals and questions" was approved by Order No. 43 of February 12, 2020 by Ministry of Transport and Communications of KR.

GRG's activity under the Grievance Redress Mechanism.

277. Grievance Redress Mechanism (GRM) includes the following 2 stages of complaint review:

1st stage, Local Level (at the village level).

278. First, complaints are filed at level of rural community in which complainant lives. Complainant reports grievance to Local Contact Person (LCP). LCP initiates work of GRG, which assesses situation and seeks solution through negotiations with complainant, local Road Maintenance Enterprise (DEP), regional Ombudsman and chosen representative of affected person.

2nd stage, Central Level.

279. If within an additional 15 days complaint is still not resolved at local level, complainant forwards question to main office of MOTC (Bishkek), again with support of LCP, its representative and regional Ombudsman. GRG determines validity of complaint and makes decision in agreement with PIU/MOTC.
280. Work of GRM involves one or more meetings for each complaint and may require field investigations by dedicated technical experts or evaluators. Claims brought by more than one complainant can be consolidated into one case.
281. Local level grievance redressal meetings will be held in complainants' villages. Meetings to consider complaints at central level will be held in MOTC building (Bishkek), and members of GRG will also travel to villages to visit complainants.

GRG staff.

282. On behalf of MOTC, GRG was created. At different levels of complaint, GRG consists of following persons/staff.

GRG at Local Level.

283. GRG will be formed by order of MOTC. GRG will consist at various levels of circulation of following persons/staff:

Table 15. Composition of local GRG.

| Members | Job title |
|--------------------------------|------------------|
| Head of village-administration | LCP |
| RMI representative | Member |
| 2 representatives of APs | Members |
| Ombudsman region | Member |

GRG at the central level.

284. At central level, GRG will consist of following 6 people.

Table 16. Central GRG Composition.

| Members | Job title |
|--|------------------|
| Head of PIU MOTC | Chairman |
| PIU Project Coordinator | Member |
| Representative of the Department for Protective Measures of the State Register (ecology) | Member |
| Representative of the Department for Protective Measures of the PIU (resettlement) | Member |
| DEP representative | Member |
| Ombudsman region | Member |

285. At each level of complaints, work of GRG will be assisted, if necessary, by professional staff needed to resolve each individual case. These will include, among others:

- Representatives of the district state administration;
- Representatives of the district branch of the State Agency of Architecture and Construction;
- District state registration services;
- Ministry of Agriculture;
- State Agency for Environmental Protection and Forestry;
- Ministry of State Property;
- Technical knowledge of professional engineers.

Responsibilities of GRG members.

Local contact person (LCP) / Head of village-administration.

286. Upon receipt of written notice of a complaint, LCP takes the following measures:

- draws up a complaint note, signed by complainant and LCP, indicating full name of complainant, date and place of submission of complaint, with description of complaint and provision of supporting documents (if any);
- sends a complaint note to all members of local GRG, convenes them for GRG meeting and sets date for first meeting to consider complaint (and subsequent ones, if necessary);
- sends a request to village authorities to arrange a meeting(s);
- chairs meetings of the GRG;
- forwards requests and questions of complainants to PIU/MOTC and other members of GRG at village level;
- records all its meetings and contacts with complainants;
- acts as a witness to appeal cases at all levels;
- provides administrative and organizational support in work of GRG members;
- disseminates information about GRM to affected local communities.

RMI representative.

287. Upon receipt of notification of complaint and invitation to meeting to consider complaint from LCP, representative of Department of Economic Development takes following measures:

- contacts the complainant(s) and writes a note with his/her understanding of the complaint;
- registers complaints and submitted supporting documents;
- participates in all meetings to consider complaints, expresses his opinion and carries out analysis, keeps minutes of discussions;
- accompanies appraisers on site (if their involvement is needed);
- based on reports from members of GRG, setting out their position, and his understanding of case (essence of complaint), prepares final report on consideration of complaint and recommendations, which will be sent to complainant, other members of GRG. Report may indicate that: i) matter was resolved without further action; ii) case can be resolved but compensation or other action is required; iii) case remains unresolved;
- if complaint is recognized as valid and PIU has approved required compensation/required action, is engaged in issue of payment of compensation or implementation of appropriate action to resolve complaint;
- upon receipt of notification from LCP that complainant with unresolved complaint wants to file complaint at higher level, informs PIU/MOTC and proceeds to organize meeting to consider complaint at central level.

Representatives AP.

288. Two representatives of APs from the affected community will participate in all GRG meetings, as well as:

- will participate in all complaints review meetings;
- will provide relevant information related to submitted complaints;
- will provide other GRG members with a note outlining their position, which will be reflected in the final report of the meeting.

Ombudsman.

289. Upon receipt of notification of a complaint and an invitation to a meeting to consider the complaint from the LCL, the Ombudsman takes the following measures:

- monitors the process of handling complaints and ensures that decisions made by the GRG are fair and objective;

- expresses his independent opinion and makes recommendations related to the decision that the GRG made on the complaint;
- notifies the complainant(s) of his/her rights to compensation (if necessary);
- participates in all GRG meetings and site visits;
- participates in the assessment carried out on the site (if such an assessment is required);
- after the meeting(s), prepares a note setting out his position and sends it to the LCP/Chairman of the GRG.

Chairman of the GRG / Head of the PIU of the Ministry of Transport and Communications.

290. Upon receipt of notification that the complainant has filed his/her grievance at the central level, the GRG Chairman takes the following measures:

- contacts the complainant(s) and writes a note with his/her understanding of the complaint;
- engages members of the GRG through a written invitation;
- chairs GRG meetings and ensures that minutes of meetings are shared with all interested parties;
- reviews the contents of each decision prepared after deliberations to ensure the correctness and consistency of the responses provided to complainants;
- provides administrative and organizational support in the work of GRG members;
- supports the decision made by the GRG and ensures control over its implementation.

Project coordinator for PIU.

291. Upon receipt of notification that the complainant has filed a grievance at the central level, the PIU Project Coordinator takes the following actions:

- contacts the complainant(s) and writes a note with his/her understanding of the complaint;
- participates in the meeting to consider the complaint, expresses his opinion and carries out analysis, keeps minutes of discussions;
- if necessary, repeatedly calls appraisers and accompanies them on the site;
- requests the Chairman to organize meetings (if necessary);
- maintains communication between the GRG and complainants.

Representatives of the PIU Safeguards Division.

292. Upon receipt of notification that complainant has filed complaint at central level, representatives of Safeguards Division and PIU Technical Division take following actions:

- prepare a chronology of events to understand the sequence of circumstances leading to the complaint;
- express their views on environmental and resettlement issues regarding the impacts alleged by the complainant;
- ask the Chairman to organize meetings (if necessary);
- maintain communication between the GRG and complainants.

Technical specialists.

293. When notified that professional advice is required to assess impact alleged by complainant, appropriate technical specialist will conduct necessary investigations and prepare report, which

will be shared with complainant and other GRG members. Technical specialist's responsibilities include following:

- a. provide an appropriate technical opinion on the case under consideration;
- b. carry out the necessary research in accordance with your qualifications;
- c. make a recommendation if a legal opinion is required from the relevant government authorities.

Grievance Process.

294. LCP of GRG will always be available to consider problems and complaints of APs. It will assist dissatisfied affected individuals to formally submit their complaints to GRG. Complaints received from APs will be processed in manner described below.

Table 17. Complaint resolution process

| Stages | Level of consideration | Process |
|---------|---|--|
| Stage 1 | Negotiation | At initial stage, LCP listens to dissatisfied person and tries to find acceptable solutions to his problem. If dissatisfied AP is not satisfied with solution found, he submits his complaint in writing to relevant local GRG within 7 days. |
| Stage 2 | Resolution of the complaint at the local GRG level | Upon receipt of a written complaint by the DP, the LCP prepares a dossier for hearing and consideration of the GRG's claim. An official hearing is held with the participation of the GRG on a date established by the LCP and agreed upon with the dissatisfied AP. On day of hearing, dissatisfied AP appears before GRG in building of corresponding village-administration and presents evidence in support of his claim. LCP records complainant's statements and documents all evidence. Decision of majority of GRG members is considered final. This decision is issued by LCP and signed by other GRG members. Recorded materials on complaint are updated, and LCP communicates decision to affected complainant within 15 days from date of filing. If dissatisfied AP is not satisfied with decision made, LCP submits his complaint in writing to central GRG under Ministry of Transport and Communications along with conclusion and supporting documents prepared at local level. |
| Stage 3 | Resolution of the complaint at the level of the Central GRG | Upon receipt of written complaint by AP, Chairman of central GRG prepares File for hearing and consideration of complaint by Grievance Redressal Unit. Formal hearing is held with participation of GRG on date set by Chairman of GRG and agreed upon with dissatisfied AP. GRG contacts complainant and goes to his village. PIU Project Coordinator records complainant's statements and documents all evidence. Decision of majority of GRG members is considered final. This decision is issued by Chairman of GRG and signed by other members. Recorded materials on complaint are updated, and PIU Project Coordinator informs decision to affected complainant within 15 days from date of filing. |

295. If demands of dissatisfied PAPs cannot be met through grievance redressal system, they may, at any time and at any stage, seek desired remedy from appropriate court at their own expense. At any stage after registering complaints in GRM log, DPs have access to ADB Reporting Mechanism.

296. The grievance redressal process is shown in flowchart below.

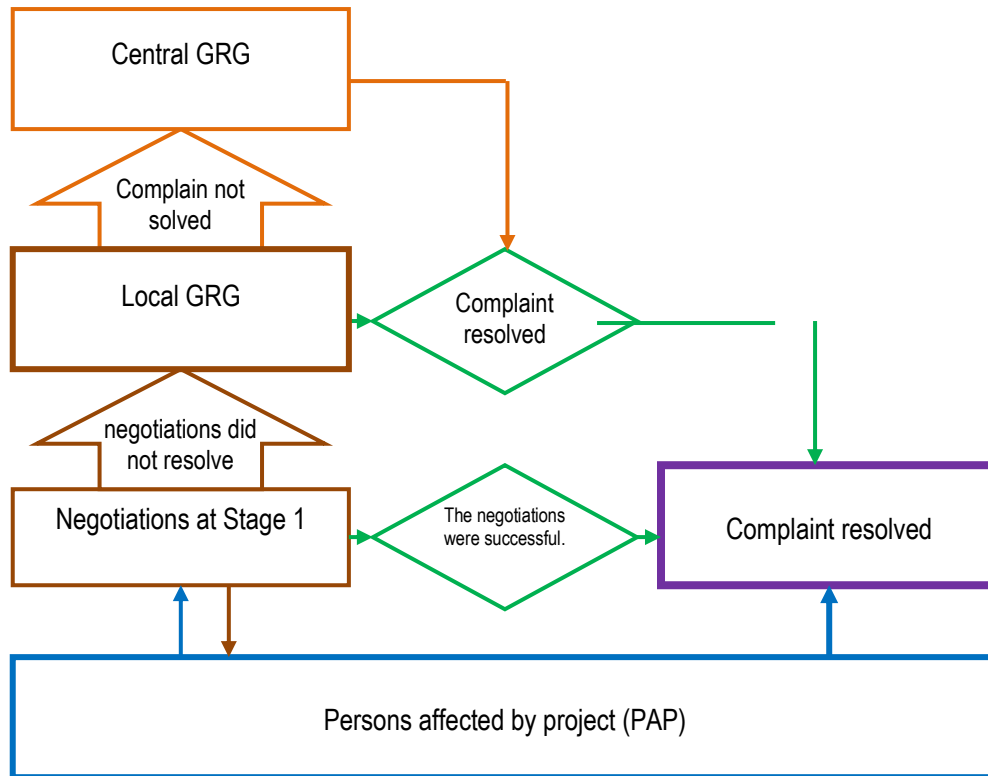


Figure 12. Complaint resolution process

Reporting and Documentation of GRG.

297. The MOTC PIU will maintain a record of all grievances for regular monitoring of grievances and results of GRG's services, as well as for periodic verification by ADB.

VIII. SITE-SPECIFIC MANAGEMENT PLAN.

Organizational structure.

298. Relevant institutions working with project include Ministry of Finance of KR, MOTC KR (IA), Project Implementation Group (PIU) of MOTC KR, Ministry of Natural Resources, Ecology and Technical Supervision (MNRETS KR), Department of Disease Prevention and State Sanitary and Epidemiological Supervision DDPSSSES of Ministry of Health of KR.
299. MOTC is responsible for development of transport sector and is Executing Agency (EA) of project. MOTC has overall responsibility for planning, design, implementation and monitoring of project. PIU MOTC carries out tasks assigned by MOTC.
300. Ministry of Finance of KR is an authorized government body responsible for coordinating actions with ADB and other donors regarding external assistance issues.
301. MNRETS KR is the leading environmental government agency, responsible for state policy in this area and coordinating the actions of other government bodies on these issues. Its features include:
- development of environmental policy and its implementation;
 - carrying out state environmental assessment;
 - issuance of environmental licenses;
 - environmental monitoring;
 - provision of environmental information services.
302. MPRETS carries out its activities in accordance with the Law “On the Procedure for Conducting Inspections of Business Entities.” also, carries out, in accordance with the established procedure, supervision of compliance with:
- a. environmental legislation, established rules, limits and norms for environmental management, standards for emissions and discharges of pollutants and waste disposal in the natural environment;
 - b. industrial safety requirements during construction, expansion, reconstruction, technical re-equipment, operation, conservation and liquidation of hazardous production facilities;
 - c. requirements of land legislation;
 - d. safety requirements for the operation of equipment and facilities for storing and dispensing petroleum products and gases, lifting cranes;
 - e. requirements of safe operation rules during construction, installation and adjustment of electrical networks and electrical equipment.
303. DDPSSSES carries out supervision in the field of sanitary and epidemiological well-being of the population, safety of goods, products, environmental objects and conditions, prevention of the harmful effects of environmental factors on human health.
304. A sector of non-governmental organizations has also formed in Kyrgyzstan, actively participating and sometimes leading in solving environmental problems in the country.
305. CSC And PIU will accept following measures for provision compliance laws about security surrounding environment V compliance With SSEMP in time implementation Project:

- (i) CSC and PIU will inform Contractor and will clearly determine obligations contractor V respect acceptance measures by reduction unfavorable environmental impacts outlined in SSEMP.
- (ii) Cost reduction unfavorable environmental impact is included in the Bill of Quantities as separate items. This will ensure that a dedicated budget is available to reduce adverse environmental exposure, which will be used as needed.
- (iii) Contractor will provide the presence of an environmental, health and safety specialist who will be responsible for implementing the contractor's environmental obligations. The contractor will also be responsible for occupational health and safety issues at work sites.
- (iv) CSC will carry out environmental monitoring and assist the PIU in implementing SSEMP and monitoring the implementation of mitigation measures by contractors.

Reporting requirements.

306. MOTC (PIU), with support of Consultant, will monitor compliance and implementation of protective measures specified in SSEMP. Monitoring results will be reflected in monthly progress reports. During construction phase, Construction Supervision Consultant will prepare and submit semi-annual monitoring reports to MOTC within 1 month after reporting period. These reports will then be posted on ADB and MOTC websites.

Site-specific Environmental Management Plan.

307. SSEMP covers 8 new sections of additional roads and describes various activities proposed under Project, designed to prevent, minimize or compensate for adverse environmental impacts that may occur as result of Project.

308. SSEMP consists of two tables and an annex with sub-plans. Table 18 provides brief information on environmental mitigation measures, while Table 19 outlines general information on environmental monitoring, including timelines and responsibilities for implementation of environmental monitoring.

Environmental Monitoring Plan

309. Environmental monitoring is an important aspect of environmental management during the design phases of construction and operation, which ensures environmental protection. During construction, environmental monitoring will ensure that the embankment is protected from potential soil erosion and the restoration of soil reserves, will monitor quarry operations, the location of work sites, material storage areas, asphalt production plants (asphalt plants), public relations and compliance with safety precautions. During work, monitoring noise levels, air quality and surface water quality will be an important part of the control program.

Table 18. Site-Specific Environmental Management Plan (SSEMP).

| MEASURES TO REDUCE ADVERSE IMPACTS DURING CONSTRUCTION AND PRODUCTION OF WORK | | | | |
|---|--|---|--------------------------|----------|
| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
| | | | Implementation | Control |
| Pre Construction Phase | | | | |
| Environmental permitting documentation (consents, permits for development of quarries, locations of production sites, asphalt plants, workers' camps, disposal sites for unsuitable soil, etc.) | Suspension of works due to absence of permits or approvals from local and national authorities. | Obtain all required environmental approvals, permits, and clearances prior to commencement of construction works. | Contractor | CSC, PIU |
| Grievance redress mechanism (GRM) | Complaints related to the project. | GRM publishes notices to inform the public in the project area about GRM, contact information (GRM website address, PIU address and phone number, PIU contact center email) and local representatives (e.g., contractors). | | |
| Institutional Structure and Its Strengthening | Delay in project implementation due to lack of capacity and staff, and non-compliance with requirements. | Hire and appoint qualified environmental specialists; Before construction, conduct necessary training programs covering relevant environmental, health, and safety laws, regulations, and standards; implementation of EMP, environmental monitoring, and GRM in accordance with ADB requirements and national legislation. | Contractor | CSC, PIU |
| CONSTRUCTION PHASE | | | | |
| Preservation of topsoil. | Topsoil degradation | Removal of topsoil within the site clearing corridor. Topsoil must be removed and stored for reuse. Long-term topsoil stockpiles will be immediately protected to prevent erosion or fertility degradation. To protect against erosion, fast-growing vegetation, such as grass, will be grown on them. | Contractor | CSC, PIU |
| In areas where the base of the project road embankment lies very close to tree plantations. | Potential damage to trees during construction work. | Provide temporary protective fencing for plants during construction work | Contractor | CSC |
| Water canals, rivers. drainage superficial water | Potential water contamination. | To prevent pollution water, reducing emissions and protecting water quality, it is necessary to: | Contractor | CSC, PIU |

**MEASURES TO REDUCE ADVERSE IMPACTS
DURING CONSTRUCTION AND PRODUCTION OF WORK**

| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
|--------------|------------------|---|-------------------|---------|
| | | | Implementation | Control |
| | | <ul style="list-style-type: none"> • Prevent interference with the natural water flow of rivers, watercourses or streams within or adjacent to the work area, and prevent the diversion and pollution of water sources on the Site; • within or adjacent work areas from becoming polluted, silted, flooded or eroded as a result of project activities; • Description and layout of areas for maintenance of equipment and structures for storing fuel and lubricants and fuel, including distance from water sources and irrigation structures. Fuel and chemical storage facilities will be located away from watercourses. Such structures will be contained and sealed to contain spills and prevent soil and water contamination. • Provide sediment containment, such as silt fences, sediment barriers, and other devices to prevent siltation and sediment movement during project activities near rivers and streams; • Do not allow construction water containing sediment or materials (including excavation soil) to be discharged directly into surface water. • Store hydrocarbons and petroleum-based materials used in asphalt | | |

| MEASURES TO REDUCE ADVERSE IMPACTS DURING CONSTRUCTION AND PRODUCTION OF WORK | | | | |
|--|--|---|--------------------------|----------------|
| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
| | | | Implementation | Control |
| | | mixtures and other chemicals in secure, sealed containers or tanks away from surface water. Storage areas will be built on a concrete base or other containment that will allow spills to be collected into containers and cleaned up immediately. | | |
| | Competition for water resources. | Before establishing work camps, consult with local authorities to determine water sources whose use will not compete with the needs of the local population. | Contractor | CSC |
| Selection and preparation of a site, operation of the contractor's building materials warehouse (continued). | Risks to the health and safety of workers and surrounding communities. | <p>To protect the health and safety of workers and surrounding communities, the following must be provided:</p> <ul style="list-style-type: none"> • adequate medical facilities (including first aid stations) within construction sites; • training of all construction workers in basic sanitation, medical care, occupational health and safety, and the specific hazards of their work; • personal protective equipment for workers, such as safety shoes, helmets, gloves, protective clothing, safety glasses and hearing protection, as required by law; • clean drinking water for all workers; • adequate protection for the public, including safety barriers | Contractor | CSC, PIU |

| MEASURES TO REDUCE ADVERSE IMPACTS DURING CONSTRUCTION AND PRODUCTION OF WORK | | | | |
|--|---|--|--------------------------|----------------|
| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
| | | | Implementation | Control |
| | | <p>and marking of hazardous areas;</p> <ul style="list-style-type: none"> • safe passage through the construction site for people whose homes and road accesses were temporarily disconnected due to road construction; • proper drainage system throughout the camp to prevent the formation of standing water and puddles; • toilets and garbage cans on the construction site, which the contractor will periodically empty to prevent outbreaks of epidemics. <p>Where possible, the contractor will arrange for the temporary integration of waste removal from work sites with existing waste collection systems and treatment facilities in surrounding communities.</p> | | |
| Construction site operation/Operation of equipment maintenance and fuel storage areas. | Worker health and soil/water contamination. | Contractor shall engage a qualified occupational health and safety expert to provide safety training to personnel as required by the individual workplace. Before starting work, construction site personnel must be familiarized with the safety rules when working with hazardous substances (fuel, oil, fuel, bitumen, paint, etc.) and their storage, as well as when cleaning equipment. In preparing such training, the contractor must draw up a shortlist of materials (a list of options | Contractor | CSC, PIU |

**MEASURES TO REDUCE ADVERSE IMPACTS
DURING CONSTRUCTION AND PRODUCTION OF WORK**

| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
|--------------------------------|---|--|-------------------|----------|
| | | | Implementation | Control |
| | | <p>compiled from an expanded list of options) that will be used (in terms of quality and quantity) and provide an approximate concept of the training /instruction that construction workers will undergo.</p> <p>Fuel and chemical storage facilities should be located away from watercourses. Such structures will be contained and sealed to contain spills and prevent soil and water contamination.</p> <p>Store and dispose of waste/used oil in accordance with legal environmental requirements.</p> <p>Restoration of work sites: After completion of construction work, the contractor must carry out all work necessary to restore the original condition of the sites (removal and proper disposal of all materials, waste, structures; surface modeling (if necessary); distribution and leveling of accumulated topsoil).</p> | | |
| Work of the construction camp. | Road construction projects carry a high potential risk of impacting local communities and the health and well-being of those living in or near temporary work camps, contributing to the spread of sexually transmitted diseases and HIV/AIDS. In addition, the transport sector itself actually helps the spread of epidemics, because... infrastructure and related transport services help people and infections move. | Providing workers with information that will encourage changes in personal behavior and encourage the use of safety precautions. The purpose of providing such information is to reduce the risk of transmission of HIV/sexually transmitted diseases among construction workers, camp support staff and the local population. | Contractor | CSC, PIU |

**MEASURES TO REDUCE ADVERSE IMPACTS
DURING CONSTRUCTION AND PRODUCTION OF WORK**

| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
|---|---|--|-------------------|---------|
| | | | Implementation | Control |
| Earthworks and various construction work. | Damage to the top layer of soil. | The top layer of soil in areas that will be used to store excess construction material on road embankments must be removed and stored in order to be reused to cover these areas upon completion of work. In addition, it is necessary to develop a soil management plan detailing the measures that need to be taken to minimize the effects of wind and water erosion on the dumps; measures to reduce degradation of the top layer of soil; deadlines; transport routes; waste disposal and disposal sites. | Contractor | CSC |
| Excavation and various construction work (continued). | Siltation of surface water and/or impact on soils due to improper disposal of excess materials. | Almost all of the excavated soil will be reused. In addition, the old asphalt road surface will be reused for the construction of new road surfaces. In this way, the potential impact associated with the need to dispose of excess material will be minimized. | Contractor | CSC |
| | Air pollution due to exhaust emissions during the operation of construction equipment. | The Contractor will maintain construction equipment in good condition and, if possible, avoid running engines at low speeds (cranking engines). Prohibition of the use of machinery or equipment that causes excessive air pollution (such as smoke). | Contractor | CSC |
| | Disturbance of nearby settlements due to increased noise levels. | Limit work from 08.00 am to 19.00 pm within 500 m from populated areas. In addition, a limit of 70 dBA is established and strictly observed near the construction site. | Contractor | CSC |

| MEASURES TO REDUCE ADVERSE IMPACTS DURING CONSTRUCTION AND PRODUCTION OF WORK | | | | |
|--|---|---|--------------------------|----------|
| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
| | | | Implementation | Control |
| | Soil compaction due to the operation of heavy equipment. | Limit the operation of heavy equipment within the corridor that is essential for road construction to avoid soil compaction near the road and on agricultural lands located near the road. | Contractor | CSC |
| Excavation and various construction work (continued). | Creating inconvenience to traffic flow. | <p>Before mobilizing, submit a traffic management plan to local transportation authorities.</p> <p>Provide information to the public about the scope and schedule of construction work, as well as expected disruptions to normal lifestyles and access/passage/passage restrictions.</p> <p>Provide adequate traffic flow around construction sites.</p> | Contractor | CSC, PIU |
| Construction work in close proximity to existing infrastructure, including water pipes and other household communications, wastewater disposal facilities, power lines, etc. | Damage to infrastructure, interruption of household communications in infrastructure enterprises. | <p>During the engineering design, measures will be taken to prevent any disruption to the existing infrastructure.</p> <p>The relevant services must be informed about construction work before the start of the project.</p> <p>If it is necessary to interrupt the work of any public service, it is necessary to coordinate this with the relevant departments and notify the population in advance.</p> | Contractor | CSC, PIU |

**MEASURES TO REDUCE ADVERSE IMPACTS
DURING CONSTRUCTION AND PRODUCTION OF WORK**

| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
|---|---|---|-------------------|----------|
| | | | Implementation | Control |
| Rehabilitation work in villages and near sensitive receptors such as schools and hospitals. The list of sensitive receptors is provided in paragraph 99 | Noise exceeding current noise standards. Vibrations can bring to damage local infrastructure, including private property and local (transport) roads. Table 3. Permissible noise levels in the Kyrgyz Republic (dB). Equipment used: Ecophysics 110A | <p>For sensitive receptors such as schools and hospitals, it is necessary (to the extent technically feasible) to comply with current noise regulations by measuring noise levels and, if standards are exceeded, to set time limits for construction work from 8.00 am to 7.00 pm.</p> <p>In the event of potential damage to local infrastructure, including private property And local (transport) roads, it is necessary to create procedures for paying compensation. They must be prepared before construction begins and approved by an engineer.</p> <p>It is also necessary to establish grievance procedures to facilitate communication between the contractor and people who may be affected. In addition, the contractor and local government representatives should discuss and jointly approve transport routes and access roads to the construction site in order to minimize the risk of conflicts.</p> | Contractor | CSC, PIU |
| OPERATION STAGE | | | | |
| Increasing the intensity of traffic flow. | <p>Increased levels of waste gas emissions and noise pollution due to increased traffic flow.</p> <p>In addition, there is an increase in the incidence of accidents involving pedestrians and vehicles due to increased traffic volumes and high speeds as a result of improved road surface design.</p> | Incorporate safety measures into the engineering design, such as speed limit signs, appropriate road markings, street lighting, pedestrian crossings, livestock crossings and other visual aids. | Design Consultant | CSC |

**MEASURES TO REDUCE ADVERSE IMPACTS
DURING CONSTRUCTION AND PRODUCTION OF WORK**

| Type of work | Potential Impact | Mitigation measures | Responsible Party | |
|--|--|---|-------------------|----------|
| | | | Implementation | Control |
| Damage to the drainage system or uncontrolled erosion. | Harmful environmental impacts resulting from damaged drainage systems or uncontrolled erosion. | Systematic monitoring of drainage systems and erosion control at least twice a year. | PIU MOTC | DOF |
| Dust | Deterioration of air quality, impact on flora and fauna. | Water is used for dust suppression. It is prohibited to operate an asphalt plant with a faulty cleaning system. | contractor | CSC, PIU |
| Flora and fauna | Population declines and habitat disturbance | Construction equipment only operates in designated access road areas. The sites are located in the zone of human activity; the use of any special measures to protect flora and fauna is not required. | contractor | CSC, PIU |
| Waste | Environmental pollution. | All waste is collected and transported to an approved disposal site or authorized landfill. | contractor | CSC, PIU |

Table 19. Environmental Monitoring Plan.

| Question | What parameter needs to be controlled? | Where should the parameter be monitored? | How should the parameter be controlled? | When should a parameter be monitored? Periodicity | Responsible Party |
|---|--|--|--|--|-------------------|
| Construction Stage | | | | | |
| Surface water quality (temporary watercourses) | Turbidity, Suspended Solids, BOD ₅ , Oil Products | <ol style="list-style-type: none"> 1. Ak Olon (Kyzyl Ompol – Ak Olon) 2. Komsomol (Kum Dobo – Komsomol) 3. Shamsy (Kum Dobo – Shamsy – Saralasz) 4. Kommunizm Ortok | Sampling and conducting laboratory chemical analyses by a specialized laboratory | Before, during, and after construction works | |
| Noise/vibration Rehabilitation works within populated areas in places where the Project Road passes near sensitive receptors such as schools, hospitals, mosques, bazaars and other sensitive socio-economic infrastructure | Vibration and noise level | <ol style="list-style-type: none"> 1. Balykchy – access to homes, km 0+440 2. Balykchy – access to MES, km 0+800, km 1+100 3. Kyzyl Ompol – Ak Olon, km 11+920 (0+340), km 10+285 (2+000) 4. Kum-Dobo – Shamsy, km 1+400 5. Kum-Dobo – Komsomol, km 5+000 (cemetery), km 15+000 (sheepfolds), km 17+000 (cemetery) 6. Cholpon village, km 0+410 7. Tendik-Roundabout, km 0+000 – km 2+900 (cemetery) 8. Kommunizm – Ortok, km 0+320 – km 0+750 (1 household) 9. Chonpon village, km 0+410 10. Asphalt plant (AC) 11. Quarries | Using a portable device for measuring noise and vibration levels | Before construction, during construction, and after completion | CSC, PIU MOTC |

| Question | What parameter needs to be controlled? | Where should the parameter be monitored? | How should the parameter be controlled? | When should a parameter be monitored? Periodicity | Responsible Party |
|--|---|--|--|--|---|
| Air quality deterioration | Dust, noise, SO ₂ , NO ₂ , CO | <ol style="list-style-type: none"> 1. Balykchy – access to homes, km 0+440 2. Balykchy – access to MES, km 1+100 3. Kyzyl Ompol – Ak Oloon, km 11+920 (0+340) 4. Kum-Dobo – Shamsy, km 1+400 5. Kum-Dobo – Komsomol: km 5+000, km 15+000 (livestock pen), km 17+000 6. Cholpon village, km 0+410 7. Tendik Ring, km 0+000 8. Kommunizm – Ortok, km 0+750 (1 household) 9. Asphalt concrete plant (AC) | Using an appropriate portable measuring instrument | Before the start of construction, during construction, and after its completion | Construction Supervision Consultant (CSC), PIU MT&D with the assistance of Supervision Consultant (CSC) |
| Potential tree felling due to embankments being installed in areas close to tree trunks | Trees located on the newly designed embankment | Tree felling is not planned within the scope of the Project. | Inspections, surveillance. It is allowed to construct an embankment up to 30 cm high at the base of the area adjacent to tree trunks. Filling more than 30 cm will damage the tree, and cutting down will be necessary. The decision is made by the building supervision consultant. | During the construction phase | Construction Supervision Consultant (CSC) |
| Preservation of the top layer of soil | Device dumps And protective equipment | Construction site | Inspections, surveillance | When preparing a construction site, after constructing dumps and after completion of work on the roadsides | Construction Supervision Consultant (CSC) |
| Maintenance and refueling of equipment | Prevent oil and fuel spills | Contractor's building materials warehouse | Inspections, surveillance | Surprise inspections during construction | Construction Supervision Consultant (CSC) |

| Question | What parameter needs to be controlled? | Where should the parameter be monitored? | How should the parameter be controlled? | When should a parameter be monitored? Periodicity | Responsible Party |
|--|--|--|---|---|--|
| Worker safety and health | Official approval of the work camp. Availability of appropriate personal protective equipment. Organization of traffic flow on a construction site. Conducting safety training for personnel in accordance with the requirements of the individual workplace. | Construction site and work camp | Inspection, surveys, comparisons with the Contractor's work project | Weekly site visits by a hired health and safety expert. Surprise inspections during construction and when complaints are received. | Construction Supervision Consultant (CSC) |
| Training for workers on AIDS and STDs | Has appropriate training been provided? | The decision will be made by the appointed CSC | The decision will be made by the appointed CSC | After the start of work and at certain intervals throughout construction | Construction Supervision Consultant (CSC) |
| Material supply Installation for the production of asphalt (asphalt plant) | Availability of official approval or valid operating license | Asphalt production plant (asphalt plant) | Inspection | Before starting work | Construction Supervision Consultant (CSC) |
| Career zones | Availability of official approval or valid operating license | Sand and gravel reserve soil and/or quarry | Inspection | Before starting work | Construction Supervision Consultant (CSC) |
| Transportation of materials Asphalt | vehicles covered and moistened? | Construction site / transport routes | Inspection | Surprise checks during work | Construction Supervision Consultant (CSC) |
| Stone | Compliance with the Contractor's work project (limited duration of work; transport routes). | Construction site / transport routes | Inspection, sudden (spot) checks and | Surprise checks during work | Construction Supervision Consultant (CSC) |
| Sand and gravel | If necessary, dust suppression methods. | Construction site / transport routes | Inspection | Surprise checks during work | Construction Supervision Consultant (CSC) |
| Surface water protection | Compliance by the Contractor with the approved work plan | На местах пересечения оросительных каналов с дорогой | Inspection | Surprise checks during bridge and culvert work | Construction Supervision Consultant (CSC) |
| Air pollution due to improper maintenance of equipment Asphalt production plant (asphalt plant) and machinery | Exhaust gases, dust | On the site | Measurements near crushers and asphalt production plants. Regular acts of inspection of vehicles and equipment. | Surprise inspections during construction work | Construction Supervision Consultant (CSC), Highway Administration (UAD, PLUAD and GDAD BO) |

| Question | What parameter needs to be controlled? | Where should the parameter be monitored? | How should the parameter be controlled? | When should a parameter be monitored? Periodicity | Responsible Party |
|---|---|--|--|---|--|
| Planting new trees on the roadside | Constant monitoring and control of the survival rate of new planted trees | Where new trees are planted | Planting new trees to replace those cut down | Monitoring must be carried out in the fall to make it possible to replace trees that have not taken root. | Contractor - in the 1st year / Territorial divisions of the Ministry of Transport and Communications - in subsequent years |
| Operation phase | | | | | |
| Increase in number of pet fatalities on roads due to higher traffic intensity and vehicle speeds | Death of animals on the roads | Along the new road | Register an accident. In case of identification of emergency points involving large mammals, it is necessary to develop appropriate safety measures (for example, reflectors / local barriers, warning signs, reduced speed, etc.) | During the year | Regional divisions of the Highway Departments (UAD, PLUAD and GDAD BO) |
| Increased traffic volume may increase potential spill risks | Road accidents that cause hazardous substance spills | Along the new road | Accident counting | During the year | MT&D together with traffic police of Ministry of Internal Affairs of KR, Ministry of Emergency Situations KR |
| Damaged drainage system or uncontrolled erosion | Drainage leaks and damage due to erosion | Culverts and drainage structures | Documentation | During the year | Territorial divisions of Ministry of Foreign Affairs and Trade |

UAD – Highway Administration

PLUAD – Production Line Management of Highways

GDAD BO – General Directorate of the Bishkek-Osh highway

310. The estimated cost of environmental management and consultation monitoring for the entire 1-year period of the construction project is shown in Table 20. This will include fees and other related costs for the management and monitoring of construction sites and affected areas within the projected road.

Table 20. Budget expenditures on specialists.

| Item | Qty | Unit Price | Total Cost |
|--|-------------------|------------|------------|
| SEMP implementation | | US \$ | US \$ |
| International Environmental Specialist (IES) | 2 months/ 1 year, | 15,400 | 30,800 |
| National Environmental Specialist (NES) | 6 months/ 1 year, | 2,750 | 16,500 |
| Total | | | 47,200 |

311. In addition, the main Contractor shall carry out periodic parametric measurements as a basis for taking measures to improve their performance in implementing the measures. Therefore, the budget for periodic parametric measurements is given below in Table 21.

Table 21. Budget cost of environmental monitoring requirements.

| Item | Qty | Unit Price | Total Cost |
|---|-----|------------|------------|
| SEMP implementation | | US \$ | US \$ |
| Periodic parametric measurements | | | |
| 4* points (air) x 4 times a year** month | 16 | 120*** | 1,920.0 |
| 4* points (water) x 4 times a year** month | 16 | 100*** | 1,600.0 |
| 4* points (noise, vibration) x 4 times a year** month | 16 | 45*** | 800.0 |
| Total | | | 2,600.0 |

* - the number of points and measurements can vary

** - 1 year of physical work and 1 year of technical examination

*** - unit price for May 2025

312. Annexes to SSEMP consist of the following sub-plans:

Waste Management Plan

Health and Safety Management Plan

Emergency Response Plan

Chance Finds Plan (for potential cultural heritage discoveries)

Dust Suppression Plan

Noise Control Plan

313. **Waste Management Plan.**

In any construction project, waste is generated and must be managed through a plan, as it poses a threat to the environment. During construction, waste includes trash, demolition debris, and leftover materials. In addition, small quantities of hazardous waste may be generated, such as liquid fuel, oils, chemicals, cartridges, oily rags, used filters, contaminated soil, and so on. The main construction wastes from road works are unsuitable soil and old asphalt.

Scope of Waste Management Plan (WMP). This WMP addresses issues related to waste management during construction, operation of various construction facilities, and post-construction activities. The WMP covers the following main areas:

- Types and quantities of waste generated during construction and operation, including chemical and hazardous materials, household and liquid wastes.
- Mitigation measures to manage accidents, spills, and other incidents that may impact the environment due to waste handling during construction and operation.

This plan should be considered a living document, to be updated and supplemented with information as needed throughout all stages of construction and operation.

Waste Handling Requirements

The main requirements for waste handling are:

It is strictly prohibited to dispose of pollutants or waste on land or in water;

Minimize the amount of waste sent to landfills during construction and operation;

Maximize the use of recovered material for reuse or recycling during construction and operation whenever possible;

Dispose of all waste in accordance with national environmental legislation and guidance documents;

Prevent complaints related to waste management during construction and operation.

Key Principles of Waste Management. Waste Prevention: Waste generation will be minimized through the use of safe products and materials and by optimizing procurement processes.

Waste Reduction. Where possible, suppliers who minimize waste through product handling will be engaged. The purchase of low-waste materials will be encouraged and supported to further reduce waste generation.

Waste Reuse. Waste reuse will be achieved by using materials that can be repurposed during construction. Such materials include wooden supports, pallets, sandbags, old asphalt, scrap metal, and similar items.

The Environmental Engineer is responsible for implementing the Waste Management Plan, instructing workers, and monitoring compliance.

Implementation of Waste Management Plan (WMP). The WMP will be communicated to all subcontractors working on this project. The contractor will hold a discussion to explain the objectives and procedures for handling generated waste to subcontractors.

During this discussion, the following will be presented:

Waste management requirements;

Overview of waste generation processes;

Waste disposal locations;

Waste segregation requirements;

Requirements for compliance with necessary conditions.

The types of waste most likely to be generated will be identified, and subcontractors will be informed, if necessary, about the designated locations for recycling, disposal, or placement of each type of waste.

Waste Handling Processes. Generated waste materials designated for recycling, as per the list above, will be separated and stored in dedicated containers until they are sent for processing. Waste materials must be protected from contamination by hazardous waste, which will be stored for proper treatment. Waste storage locations (bins, temporary waste pits) must be arranged on specially prepared sites, such as concrete bases, and, if necessary, equipped with fences or shelters to prevent exposure to moisture during precipitation.

Potential Types of Waste Generated During Project Implementation and Their Management

During project implementation, two main types of waste may be generated: a) Non-hazardous; b) Hazardous.

Non-hazardous construction waste includes overburden, old asphalt, inert materials, concrete structures, non-ferrous metals, and glass, which can be safely disposed of at landfills. Overburden is mainly produced during quarry development. Methods and locations for storing and stockpiling overburden will be coordinated by the environmental engineer with the environmental protection authorities of Kochkor and Ton districts.

Hazardous waste includes:

Class I hazardous waste

- Various chemicals
- Paints and adhesives
- Fuel and oils
- Plasticized concrete mixtures

Class II hazardous waste

- Electronics/electrical equipment
- Incandescent lamps
- PCBs
- Coolants

Class III hazardous waste

- Sludge
- Wastewater
- Contaminated soil
- Asbestos

Required Conditions in Technical Specifications for Waste Management. The project's Technical Specifications regarding waste management indicate that all requirements of the normative legal acts of the Kyrgyz Republic—specifically, the Law “On Environmental Protection” and the Law “On Production and Consumption Waste”—must be strictly observed. All waste generated during road reconstruction must be disposed of at locations approved by the Engineer and the relevant state environmental control authority.

Management of Waste Generated in Construction Camps. The contractor will organize designated areas for collection and storage of solid and liquid waste. Locations for collecting solid and liquid waste will be arranged considering the layout of the contractor's camp, as well as the sites of asphalt plants (AC) and concrete batching plants (CBP).

All areas for collecting and storing solid waste must have a concrete base and protective shelters to prevent exposure to precipitation. Separate collection of solid waste will be ensured.

Areas for collecting liquid waste will be organized in compliance with sanitary and epidemiological requirements.

Disposal of solid and liquid waste will be carried out by transporting the waste through specialized local organizations/companies to authorized landfills or treatment facilities under a formal agreement.

Records of the removal of solid and liquid waste from the contractor's camp, ABZ sites, and other locations will be maintained in a dedicated logbook.

314. **Health and Safety Management Plan.**

General Requirements. The contractor appoints qualified personnel responsible for environmental protection, occupational health, and safety measures, who will jointly coordinate actions related to health and hygiene issues.

Before the commencement of work, the contractor has entered into agreements with medical institutions in Kochkor district to provide emergency medical care and subsequent treatment for their staff if needed.

Health and Safety Measures. Upon joining the worksite, personnel:

Present a medical certificate confirming their health status;

Receive safety and sanitary instruction;

Are provided with protective clothing (workwear, gloves, footwear), tools, and personal protective equipment (helmet, safety glasses, ear protection, etc.).

The contractor is obliged to ensure:

Continuous availability and access to clean drinking water;

Timely and nutritious three meals per day;

Safe access for local residents to their homes and clear marking of hazardous zones;

Timely and safe disposal of workplace waste and drainage of wastewater to prevent unsanitary conditions along the project road.

The contractor will take all necessary measures to protect the health of personnel and workers, including protection against sexually transmitted diseases (STDs). Confidentiality of STD-related records will be strictly maintained. Unauthorized access to the worksite will be strictly controlled.

All work areas will be equipped with first aid kits and necessary medical supplies. Materials and raw resources used in construction will be safe for human health and the environment. When handling toxic chemicals, all safety measures will be strictly followed according to manufacturer instructions.

The contractor will cooperate closely with local law enforcement and other government agencies. In the event of temporary suspension of construction due to seasonal factors or any other reason, the contractor guarantees that the construction site will remain in a safe condition and will appoint a responsible representative to oversee site security during the inactive period. Backup power sources will be used during emergency response operations in case of electricity outages.

Occupational Health and Safety Monitoring. To increase personnel awareness of health and safety practices, the contractor will organize monthly safety briefings. These briefings will be conducted by the contractor's lead engineering group in coordination with environmental and occupational safety engineers.

During these meetings, specific incidents, issues identified during the reporting period, complaints, deficiencies, and proposals for improving construction processes will be discussed.

315. **Emergency Response Management Plan.**

The Emergency Response Management Plan is an integral part of the Environmental and Social Management Plan (ESMP). Construction activities involve certain hazardous operations that may result in injury or fatalities to personnel and local residents. During construction, incidents such as damage to various facilities, fires, and other unforeseen events may occur.

Emergency Notification. To ensure rapid response in case of an emergency, responsible personnel will be designated at each worksite. In the event of an emergency, these responsible personnel must inform the engineers of the relevant services and the environmental engineer. If necessary, the environmental engineer will escalate information about the emergency to management and specially authorized government agencies, including the Ministry of Emergency Situations (MES), State Agency for Environmental Protection and Forestry (GAOOSLH), State Expertise and Technical Inspection (GETI), and State Fire and Rescue Services (DPZGSEn).

Emergencies to Be Prevented. Potential hazardous situations and construction risks that could negatively affect the environment, personnel, and local population must be assessed by responsible engineers to ensure prevention and implementation of necessary measures. The risk identification and assessment process involve a comprehensive review, including but not limited to:

- Work with heavy machinery and cargo equipment;
- Transportation, handling of materials, lifting, equipment installation, construction of temporary structures, commissioning, and startup;
- Work in potentially hazardous terrain and conditions (physical terrain features, waterways, erosion-prone areas, extreme weather events, soil collapses, etc.);
- Work at heights or in deep locations;
- Proximity to high-traffic areas, hazards associated with working in densely populated zones, power lines, and live electrical equipment;
- Sudden illness or injury of workers during construction activities.

Since road construction sites are mobile and not limited to a single location, the assessment process must be conducted regularly, considering environmental factors and dynamics.

Before the commencement of work, responsible personnel must be appointed for implementing the Emergency Response Management Plan (e.g., medical staff, safety engineer, etc.).

Potential Emergency Cases and Response Actions

In the event of an emergency within the project area, the contractor shall provide all possible assistance and support to the local branch of the Ministry of Emergency Situations (MES) of the Kyrgyz Republic in accordance with the Law of the Kyrgyz Republic “Civil Protection.”

| Potential Cases | Actions | Responsible Parties |
|---|---|---|
| Fire | Immediately evacuate all personnel to a safe area. Call the MES fire service for Ton and Kochkor districts. | Site supervisor or one of the engineering |
| Heavy rain, gusty hurricane winds, flooding, erosion, or subsidence on site | Stop work and take measures to prevent personnel injuries. Investigate causes of erosion or subsidence and eliminate them. | Site supervisor |

| | | |
|---|---|------------------|
| Damage to water pipelines and other utilities | Take urgent measures to stop leaks. Prevent contamination of the environment by sewage. Immediately contact local emergency services in Kochkor and Ton districts. Inform local authorities. Notify project management. | Site supervisor. |
|---|---|------------------|

At the construction office, a logbook is maintained for recording natural and man-made emergencies, incidents of personnel injuries, and related events. All details of such cases and the measures taken are documented.

Before the start of work, all personnel undergo briefings on potential emergency situations and the measures for their prevention and response.

Emergency contact information. At the construction company office and on the project site, all engineering staff have access to contact details of all emergency services required in case of an emergency.

Emergency services contact details

| Emergency Service Name | Phone Numbers |
|-------------------------------------|---------------|
| Police | 102 |
| Emergency Situations Ministry (MES) | 101 |
| Local Hospital | 103 |

Contact details of local self-government

| Village administration | Village | Full name | Position | Contact data |
|------------------------|---------|-----------|----------|--------------|
| | | | | |
| | | | | |

Contact details of the Ministry of Foreign Affairs of the Kyrgyz Republic, GRIP Ministry of Foreign Affairs of the Kyrgyz Republic

| No | Organization / Responsible Person | Phones / Addresses |
|----|---|---|
| 1 | Ministry of Transport and Roads, 720017 Bishkek, Isanova St. 42 | Tel: (0312) 97-09-70 Fax: (0312) 31-43-78 Email: Bishkekoshroad@infotel.kg |
| 2 | IPIG MoTR KR | Tel: 31-40-54 (reception) |
| 3 | Asylbek Abdygulov – Environmental Specialist, IPIG MoTR KR | Tel: (0312) 31-43-56 Email: asylbekA@piuMOTC.kg |

316. **Chance Find Action Plan (CFAP).**

Historical and cultural heritage objects (hereinafter referred to as “HCHOs”) in this Plan refer to archaeological and paleontological monuments, objects/structures/artifacts of historical and/or cultural significance, as well as sites of religious or spiritual importance.

This Plan is intended to ensure the Contractor’s compliance with the legislation of the Kyrgyz Republic regarding HCHOs. The Ministry of Culture, Information, and Tourism of the Kyrgyz Republic (hereinafter “MCIT KR”) is responsible for enforcing national laws related to HCHO protection. The Company/Contractor will coordinate actions under this Plan with the authorized department of MCIT KR.

The Plan ensures the protection of HCHOs during project implementation. It establishes procedures aimed at preventing the road and related construction activities from impacting HCHOs, as much as possible. These procedures cover protection of HCHOs during construction works and actions to be taken for HCHOs located near the road and other Project facilities, as well as in case previously unknown HCHOs are discovered.

The Plan outlines the following actions related to archaeological and historical monuments:

- Mandatory notification procedures and data reporting protocols;
- Actions regarding HCHOs in case of emergencies;
- Monitoring of HCHOs during construction works.

A Company representative (hereinafter referred to as the “Coordinator”) shall coordinate implementation of this Plan throughout the Project.

Legal Framework. All activities related to HCHOs are carried out in accordance with the legislative and regulatory acts of the Kyrgyz Republic. The legal framework includes:

- Law of the Kyrgyz Republic No. 91 dated 26.07.1999 “On Protection and Use of Historical and Cultural Heritage”;
- Land Code of the Kyrgyz Republic No. 45 dated 02.06.1999;
- Instruction on Establishing Protected Zones for Immovable Historical and Cultural Heritage Objects of the Kyrgyz Republic, dated 27 July 2015.

The Contractor assumes all obligations to the state authorities of the Kyrgyz Republic regarding the use and protection of HCHOs. The Company/Contractor must comply with the legislation, inform its personnel, and ensure its implementation.

According to Law No. 91 of 26.07.1999 “On Protection and Use of Historical and Cultural Heritage,” all HCHOs are the exclusive property of the state and are under its protection. All archaeological monuments have historical, cultural, and scientific value and are designated as “monuments of history and culture” (Article 6).

According to Article 31 of the Law, individuals and legal entities conducting economic or other activities on land where an HCHO is located or discovered must comply with the land-use regime established by law. The main principle of these provisions is to protect HCHOs from any potential damage. Under Article 39, violations of this Law incur criminal, administrative, and other legal liabilities. Persons causing damage to HCHOs are required to compensate for the cost of measures necessary for their preservation, which does not exempt them from administrative or criminal liability for such actions.

Under Article 84 of the Land Code of the Kyrgyz Republic, land on which HCHOs are located falls under the category of “Specially Protected Natural Areas.”

Each HCHO must have its own protective zone of at least 50 meters from the monument boundaries. Additionally, monuments must have a buffer zone in the form of a regulated area for buildings and historic landscape territories.

Action Plan for Discovery of Potential HCHOs (Chance Finds).

The Contractor must be familiar with the procedures before commencing work. The procedures are as follows:

1. Suspend any work that disturbs the topsoil, including surface clearing, trenching, and similar activities, within a 100-meter radius of the discovered object.
2. Notify the Project Manager and Engineer within 24 hours. The Engineer must, in turn, inform the archaeologist specialist of the KNS and the GRP WB of the Ministry of Culture, Information, and Tourism of the Kyrgyz Republic (MCIT KR).
3. Mark the location of the object to ensure its preservation, and refrain from conducting any construction activities on the site until the Coordinator arrives.
4. Record information about the discovery of the object.
5. Earthworks beyond the 100-meter radius may resume after examination by the archaeologist specialist and consultation with MCIT KR, once it is determined that resuming work will not negatively affect potentially significant objects. The KNS must continue to monitor earthworks in this area. Full resumption of work is allowed only after all necessary measures for the protection, preservation, or rescue of the discovered object have been implemented under the supervision of the Coordinator, based on the archaeologist’s report, recommendations, and the conclusion of MCIT KR.

317. **Dust Suppression Plan.**

Dust is one of the main sources of environmental pollution during road construction. It arises from the use and transportation of sand and sand-gravel mix from quarries, soil, and old asphalt to stockpiles. Dust affects local residents, businesses (shops, cafes), settles on crops reducing yield, contributes to road accidents, impacts water ecology, and can cause allergies and respiratory diseases.

Actions and Measures to Reduce Dust Generation. Negative effects from dust can be mitigated by watering unpaved roads. To eliminate the causes of dust generation, the Contractor will strictly implement dust suppression measures by:

Installing stationary sources of pollution at a set distance from settlements and sensitive areas;

Providing and installing protective covers on technological equipment;

Equipping all vehicles used for transporting construction materials with protective coverings (tarpaulin) or equivalent;

Limiting vehicle speed on roads passing through or near settlements;

Regular use of specialized watering vehicles to spray roads, especially during dry, hot seasons, particularly in or near settlements;

Regular watering of all unpaved access roads.

The schedule for watering vehicles will depend on the season, with increased spraying in dry, hot summer months and reduced spraying during rainy seasons.

Monitoring. Monitoring and visual inspection of dust levels at construction sites will be carried out daily by site engineers and periodically by the environmental engineer.

Monitoring and visual inspection of dust levels at construction sites will be carried out daily by site engineers and periodically by the environmental engineer.

- * Balykchy access to homes, km 0+440
- * Balykchy access to MES, km 1+100
- * Kyzyl Ompol – Ak Olon, km 11+920 (0+340)
- * Kum Dobo – Shamshy, km 1+400
- * Kum Dobo – Komsomol: km 5+000, km 15+000 (sheepfold), km 17+000
- * Village Cholpon, km 0+410
- * Village Tendik – Ring, km 0+000
- * Kommunizm – Ortok, km 0+750 (1 household)
- * AC
- * Quarries

Water Sources for Dust Suppression.

The Contractor must coordinate with relevant authorities to approve water sources for implementing dust suppression measures.

318. **Noise Suppression Plan.**

Objective.

The objective of the Construction Noise Suppression Plan (CNSP) is to monitor and minimize noise levels within the construction impact zone during the execution of construction works. This includes protective measures to reduce noise generated by heavy machinery during road surface breaking and roller compaction. Due to irregularities in the existing road and high traffic volume, particularly trucks, additional noise is generated at 20–30 meters from the roadway, gradually decreasing over the next 10 meters.

Scope.

Before the project begins, the main source of noise is road traffic. During construction, noise sources will include traffic, construction machinery, asphalt batching plants (AC), crushing units, and the Contractor's concrete production facilities.

Management.

The following personnel are responsible for implementing the CNSP:

Occupational Health, Safety, and Road Safety Engineer – overall responsibility for noise suppression.

Environmental Engineer of the Contractor – responsible for instrumental noise monitoring.

Special Project Restrictions Work near particularly sensitive areas must be limited in duration while observing the following measures: i) Implement a 30 km/h speed limit within a 500 m radius of any settlement; ii) Restrict working hours on roadside areas near settlements to 7:00–18:00; iii) Operate large and noisy equipment near settlements only during daytime, coordinating schedules with local communities; iv) Compaction must be performed using verified equipment that meets noise requirements for construction sites.

CN 2.2.4/2.1.8.562-96 “Noise in workplaces, residential premises, public buildings, and residential areas”.

CN 2.2.4/21.8.566-96 “Industrial vibration. Vibration in rooms, residential and public buildings”.

Legislation and Regulations.

In Kyrgyz Republic, noise regulations are established by the Ministry of Health under Sanitary Rules and Norms: “Noise in workplaces, residential premises, public buildings, and residential areas,” approved by Government Resolution No. 201 dated 11.04.2016.

Impacts of Exceeding Permissible Noise Levels.

Noise is a nuisance for local residents, Contractor personnel, and animals within the project impact zone. Potential impacts include: a) Negative effects on hearing; b) Hearing loss for certain sounds due to auditory damage; c) Altered perception of warning signals.

Mitigation Measures and Control.

Noise mitigation and prevention measures include:

Maintaining noise sources (vehicles, machinery, equipment) in good technical condition, with regular maintenance and timely preventive servicing.

Locating stationary noise sources (AC, crushing units, concrete plants, quarries) as far as possible from sensitive areas, ensuring a minimum distance of 500 meters where feasible. Workers at ABZ and concrete production units will be provided with appropriate personal protective equipment.

Limiting work near sensitive zones to the shortest possible duration.

Additional measures to prevent noise pollution will be implemented by the Contractor:

Stationary noise-generating facilities will be placed at distances required by Sanitary and Epidemiological Rules and Norms: “Sanitary Protection Zones and Sanitary Classification of Enterprises, Structures, and Other Facilities.”

Contractor’s construction machinery will comply with international safety standards and be equipped with effective muffler systems. Regular maintenance will ensure equipment remains in good condition and noise levels stay within permissible limits.

Work schedules will be planned to minimize simultaneous operation of heavy and noisy equipment near residential or other sensitive areas (schools, hospitals, etc.).

Construction noise in settlements will be limited to 55 dBA during daytime and 45 dBA at night. Noise levels in sensitive zones such as hospitals will be limited to 40–50 dBA. For commercial areas (restaurants, shops, etc.) and educational facilities (schools, libraries, etc.), noise will be limited to 75 dBA.

Operation of heavy machinery generating vibrations will be restricted to daytime hours.

Monitoring of Noise and Vibration Levels.

Regular noise monitoring will be conducted according to the schedule of rehabilitation works at the following “sensitive” locations, in line with ESIA recommendations:

- * Balykchy access to houses, km 0+440
- * Balykchy access to the Emergency Services: km 0+800, km 1+100
- * Kyzyl Ompol – Ak Olon: km 11+920 (0+340), km 10+285 (2+000)
- * Kum Dobo – Shamshy: km 1+400
- * Kum Dobo – Komsomol: km 5+000 (cemetery), km 15+000 (sheepfold), km 17+000 (cemetery)
- * Village Cholpon, km 0+410
- * Village Tendik – Ring: km 0+000, km 2+900 (cemetery)
- * Kommunizm – Ortok: km 0+320, km 0+750 (1 household)
- * Village Cholpon, km 0+410
- * AC (Asphalt Mixing Plant)
- * Quarries

For regular noise measurement and to reinforce mitigation and preventive measures, an accredited laboratory will be engaged by the Contractor in coordination with the Consultant.

IX. CONCLUSIONS AND RECOMMENDATIONS.

Conclusions.

319. Rehabilitation of additional road sections under the Corridors 1 and 3 Connector Road Improvement Project under CAREC (Balykchy - Kochkor km 0 + 000 - km 43 + 000 (Lot 1) and Kochkor - Epkin km 62 + 400 - km 89 + 500 (Lot 2) will improve the condition of the road surface and reduce operating costs for all vehicle owners, which will help make vehicles more durable. Road safety facilities will also be improved by providing new road signs, safety barriers, pedestrian crossings and livestock crossings across the road.
320. Overall, the project brings significant benefits to the local population and companies operating in the country by providing improved access to local and regional markets.
321. At the same time, the project consists of several operational components that potentially lead to long-term environmental impacts. These include associated erosion, air pollution and noise issues. The SIEE and SSEMP define the mitigation measure necessary to avoid a variety of impacts during the construction period by developing appropriate protocols and work programs to control potential impacts and which will be implemented accordingly.
322. The following types of impacts, which are discussed in detail in the materials of the SIEE and SSEMP, are the most important and the extent of which, with proper implementation of the SSEMP, can be reduced accordingly.
323. During the pre-construction period, MOTC, PIU and CSC will be required to complete the following key tasks:
1. Ensuring proper compliance by Contractor with the requirements of SSEMP to mitigate the impacts of work being carried out. CSC will monitor compliance with the requirements of the SSEMP;
 2. Preparation of a list of areas where it will be necessary to carry out work to preserve the top vegetative layer of soil during road rehabilitation. top plant layer of soil;
 3. Development of a transportation program during excavation work, identifying those areas where vehicle passage will be prohibited;
 4. Carrying out the necessary measures for timely dust removal of project areas, depending on the ambient temperature.
324. During construction period, CSC and Contractor(s) must:
1. Conducting field measurements of air quality and noise levels during major road repairs. Contractor will conduct these studies with involvement of accredited laboratories with participation of CSC representatives. If necessary, number of points can be increased on recommendation of CSC.
 2. Contractor must ensure timely removal of construction waste and unusable material from work sites.
 3. Contractor will ensure that health and safety requirements are met at work sites, including first aid, water, special clothing including helmets, boots and face masks.
 4. Contractor will implement a dust suppression program on all material transport routes and construction sites.
 5. CSC will inspect all culverts to ensure that their new installation does not result in persistent leaking and that any flow obstructions and debris are properly cleared.

Recommendations.

325. Contractor must strictly comply with SSEMP requirements to minimize environmental impact. Reporting required under SSEMP must be submitted to CSC in timely manner.
326. CSC and PIU will provide training to all involved project participants and focus on giving sound advice to contractor, especially on preparation and implementation of environmental work plans during construction.
327. SIEE is a “living document” and will be updated if necessary, considering all environmental requirements.
328. Construction work near burial mounds, cemeteries and sheds located near the road should be carried out using a safe method that prevents their destruction/damage. Contractor must be informed of their presence and be instructed to avoid any violations in this area and to use safe working methods with the exception of the use of vibratory rollers.
329. If possible, use existing bypass routes during construction work at project sites.

Appendix 1.

Rapid Environmental Assessment (REA) Checklist

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Safeguards Division (SDSS), for endorsement by Director, SDSS and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's: (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Project Number: 48401-007
 Loan Number: ADB Loan 3730-KGZ (SF)
 Grant Number: 0621-KGZ (SF)
 Corridors 1 and 3 Connector Road Project under CAREC. Additional funding.

Sector Division:

PIU MOTC KG

| Screening Questions | Yes | No | Remarks |
|--|-----|----|--|
| A. PROJECT SITING | | | |
| IS THE PROJECT AREA ADJACENT TO OR WITHIN ANY OF THE FOLLOWING ENVIRONMENTALLY SENSITIVE AREAS? | | | |
| ▪ CULTURAL HERITAGE SITE | | No | |
| ▪ PROTECTED AREA | | No | |
| ▪ WETLAND | | No | |
| ▪ MANGROVE | | No | |
| ▪ ESTUARINE | | No | |
| ▪ BUFFER ZONE OF PROTECTED AREA | | No | |
| ▪ SPECIAL AREA FOR PROTECTING BIODIVERSITY | | No | |
| B. POTENTIAL ENVIRONMENTAL IMPACTS | | | |
| WILL THE PROJECT CAUSE... | | | |
| ▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries? | | No | It is planned to use existing/used quarries and dumps. |
| ▪ encroachment on precious ecology (e.g. sensitive or protected areas)? | | No | |
| ▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site? | Yes | | On sections of road there are drainage pipes crossing the road. These pipes will be replaced with new pipes, and a drainage ditch will be installed along the road to drain melt and rain water. |

| Screening Questions | Yes | No | Remarks |
|--|-----|----|--|
| <ul style="list-style-type: none"> deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction? | | No | The contractor's existing camp will be used. The contractor's camp is equipped in accordance with all sanitary and epidemiological requirements |
| <ul style="list-style-type: none"> increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing? | Yes | | Short-term impact is expected for the duration of the work. It is planned to use the existing asphalt concrete plant and crusher. Production sites are located at a sufficient distance from residential areas. |
| <ul style="list-style-type: none"> risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation during project construction and operation? | | No | The construction supervision consultant will monitor the entire construction process, including the contractor's compliance with environmental protection, occupational health and safety, and road safety requirements. |
| <ul style="list-style-type: none"> noise and vibration due to blasting and other civil works? | Yes | | Short-term impact is expected for the duration of the work. All sections of roads are located outside populated areas. |
| <ul style="list-style-type: none"> dislocation or involuntary resettlement of people? | | No | |
| <ul style="list-style-type: none"> dislocation and compulsory resettlement of people living in right-of-way? | | No | |
| <ul style="list-style-type: none"> disproportionate impacts on the poor, women and children, Indigenous Peoples, or other vulnerable groups? | | No | |
| <ul style="list-style-type: none"> other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress? | | No | All sections of roads are located outside populated areas. |
| <ul style="list-style-type: none"> hazardous driving conditions where construction interferes with pre-existing roads? | | No | The construction supervision consultant will monitor the entire construction process, including the contractor's compliance with environmental protection, occupational health and safety, and road safety requirements. |
| <ul style="list-style-type: none"> poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations? | | No | The contractor's existing camp will be used. The contractor's camp is equipped in accordance with all sanitary and epidemiological requirements |
| <ul style="list-style-type: none"> creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents? | | No | |
| <ul style="list-style-type: none"> accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials? | | No | During the period of work, sections of roads will be equipped with all necessary temporary road signs, and dust removal work will be carried out. The construction supervision consultant will monitor the entire construction process, including the contractor's compliance with environmental protection, occupational health and safety, and road safety requirements. |
| <ul style="list-style-type: none"> increased noise and air pollution resulting from traffic volume? | | No | All sections of roads are located outside populated areas. |
| <ul style="list-style-type: none"> increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road? | | No | |
| <ul style="list-style-type: none"> social conflicts if workers from other regions or countries are hired? | | No | |

| Screening Questions | Yes | No | Remarks |
|--|-----|----|--|
| <ul style="list-style-type: none"> ▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)? | | No | |
| <ul style="list-style-type: none"> ▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation? | | No | The construction supervision consultant will monitor the entire construction process, including the contractor's compliance with environmental protection, occupational health and safety, and road safety requirements. |
| <ul style="list-style-type: none"> ▪ community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning. | | No | |

A Checklist for Preliminary Climate Risk Screening

Country/Project Title: Project Number: 48401-007
 Loan Number: ADB Loan 3730-KGZ (SF)
 Grant Number: 0621-KGZ (SF)
 Corridors 1 and 3 Connector Road Project under CAREC. Additional funding.

Sector:

Subsector:

Division/Department:

| Screening Questions | | Score | Remarks ⁴ |
|---------------------------------------|---|-------|----------------------|
| Location and Design of project | Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides? | 0 | |
| | Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)? | 0 | |
| Materials and Maintenance | Would weather, current, and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)? | 0 | |
| | Would weather, current, and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)? | 0 | |
| Performance of project outputs | Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design lifetime? | 0 | |

Options for answers and corresponding score are provided below:

| Response | Score |
|-------------|-------|
| Not Likely | 0 |
| Likely | 1 |
| Very Likely | 2 |

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1–4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): _____

Other Comments: _____

Prepared by: _____ PIU MOTC KR

⁴ If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

APPENDIX 2.

Information on the public hearing held July 25, 2024.

| Date | Participants | Reviewed issues | Questions and replies for review |
|--|--|---|---|
| c. Balykchy. Lot 1. Exit from the main road to MES's Depot, length 1.660 km, road section towards the Builders' Town, length 440 m. | | | |
| 07/25/2024 9:30-10:30 | <p><u>PIU/MOTC</u> Asylber Abdygulov - ES, PIU/ADB; Aibek Kashimov - Socail expert PIU/ADB</p> <p><u>Roughton International Ltd.</u> <u>and sub-consultants RAM Engineering Associates LLC.</u> Eldar Samarkulov - DTL;</p> <p><u>Balykchy c. Administration</u> Anarbek uulu Azamat, Mayor of Balykchy city</p> | <p>Local population informed about planned works major "Exit from the main road to MES's Depot, length 1.660 km, road section towards the Builders' Town, length 440 m. Road category IV, width of asphalt pavement 6 m, shoulders 1.5 meters, asphalt thickness 9 cm, replacement of existing culverts, marking and installation of road signs are planned.</p> <p>Works are planned for 2024 construction season. Information is also provided on existing <i>Grievance redress mechanisms</i>. This step is to improve and accelerate community feedback.</p> <p>Provided information on mitigation of environmental and social impacts.</p> | |
| | | <p><u>Question:</u> Where old asphalt will be removed.</p> | <p><u>PIU's reply.</u> During major, the old asphalt is planned to be removed and transported to the existing dumps. However, in coordination with the Municipality of Balykchy, CSC and PIU may consider the use of old asphalt for backfilling of existing internal roads. This issue will be solved during the period of works.</p> |

| Date | Participants | Reviewed issues | Questions and replies for review |
|------|--------------|--|---|
| | | <p>No questions from local population were raised. Thanks were expressed to ADB, MOTC KR, CSC. As well as a kind request to start the planned works as early as possible. Blessing was given from the local population to start the planned works,</p> | <p>PIU's reply . Major are scheduled for the 2024 construction season, as it is necessary to prepare the necessary documents in accordance with ADB Policy. In addition, time is needed for the selection of contractor who will carry out the capital repair works.</p> |

Photos. Balykchy city, public consultations.



List of participants in public consultations.

ТИЗМЕ катышуучулар /СПИСОК присутствующих

Өтүүчү жер / Место проведения МЧС

« 25 » 07 2024 г.

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| 23 | Шаршенбиев Турат | 0706225293 | |
| 24 | Руманов Канбек | 050031535 | |

рети

| Date | Participants | Reviewed issues | Questions and replies for review |
|---|---|--|---|
| Ak-Olon village. Lot 1. Site of the road Kyzyl-Ompol - Ak-Olon, length 12.28 km. | | | |
| 07/25/2024, 10:30- 11:00 With. Ak-Olon | <p>PIU/MOTC Asylber Abdygulov - ES, PIU/ADB; Aibek Kashimov - Socail expert PIU/ADB</p> <p><u>Roughton International Ltd.</u> <u>and sub-consultants</u> <u>RAM Engineering Associates LLC.</u> Eldar Samarkulov - DTL;</p> | <p>Local population informed about planned works major "Entrance to Ak-Olon v., length 12.28 km". Road category IV, width of asphalt pavement 6 m, shoulders 1.5 meters, asphalt thickness 9 cm, replacement of existing culverts, marking and installation of road signs are planned. Works are planned for 2024 construction season.</p> <p>Information is also provided on existing <i>Grievance redress mechanisms</i>. This step is to improve and accelerate community feedback. Provided information on mitigation of environmental and social impacts. Dust suppression was discussed.</p> | . |
| | | Question: Where the old asphalt will be removed. | PIU's reply. During major, the old asphalt is planned to be removed and transported to the existing dumps. However, in coordination with the Village Administration, CSC and PIU may consider the use of old asphalt for backfilling of existing internal roads. This issue will be solved during the period of works |
| | | Question: There is a culvert located at the village exit. Currently, the existing culvert is installed incorrectly, which is why it is getting dirty. During the works it is necessary to provide pipe level elevation. | PIU's reply. The project design envisages major road repairs, including replacement of old culverts. Regarding existing culvert, this issue will be resolved during the capital repair works. CSC will send surveyors for level surveying. |
| | | Question : Whether lighting and sidewalks are to be installed. When work will start. | PIU's reply . Installation of lighting and construction of sidewalks is not provided. Project design is aimed at capital repair of the existing road. The issue of sidewalk construction will be considered during the works phase. Major are scheduled for 2024 construction season. For MOTC KR is necessary to prepare the necessary documents in accordance with ADB guidelines and select the contractor. |

| Date | Participants | Reviewed issues | Questions and replies for review |
|------|--------------|---|--|
| | | <p>No questions from local population were raised. Mr. Marat Sharipkalov, on behalf of all Lama villagers, thanked for the information provided about the planned works. He apologized for the small number of residents present today. This is because most residents are on hay-making, but the information provided will be communicated to all residents. Blessings were given to the MOTC KR, CSC and the Contractor to start the planned works as soon as possible and the willingness of the residents to fully support the repair works on this road section as soon as possible.</p> | <p>In addition, PIU is informed that prior to commencement of works, specialists from PIU, CSC and Contractor will additionally visit the village for additional meeting and, if necessary, to discuss technical issues.</p> |

Photos. Ak-Olon village, public consultations.



List of participants in public consultations.

ТИЗМЕ катышуучулар /СПИСОК присутствующих

Өтүүчү жер / Место проведения ДТЭУК - Курулум - (Ак-Өлөк)
 «25» 07 2024г.

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| 21 | Аманжол С. | 0705843370 | |
| 22 | Аманжолова Н. | 0700808020 | |
| 23 | Мамиев С | | |
| 24 | М. Ормушев | 0505281276 | |
| 25 | Аманжол И. Садырова | 0701944981 | |

| Date | Participants | Reviewed issues | Questions and replies for review |
|--|--|---|--|
| Tendik village. Road site from the roundabout to Tendik village, length 2.9 km. | | | |
| 07/25/2024, 13:00- 13:30 Tendik village | <p>PIU/MOTC Asylber Abdygulov - ES, PIU/ADB; Aibek Kashimov - Socail expert PIU/ADB</p> <p><u>Roughton International Ltd. and sub-consultants RAM Engineering Associates LLC.</u> Eldar Samarkulov - DTL ;</p> | <p>Local population informed about planned works major "From Roundabout (project section) to Tendik v., length 2.9 km. Road category IV, width of asphalt pavement 6.5 m, shoulders 1.5 meters, asphalt thickness 9 cm, replacement of existing culverts, marking and installation of road signs are planned.</p> <p>Works are planned for 2024 construction season.</p> <p>Information is also provided on existing <i>Grievance redress mechanisms</i>. This step is to improve and accelerate community feedback.</p> <p>Provided information on mitigation of environmental and social impacts.</p> | |
| | | Question : Where old asphalt will be removed. | PIU's reply . During major, the old asphalt is planned to be removed and transported to the existing dumps. However, in coordination with the Municipality of Balykchy, CSC and PIU may consider the use of old asphalt for backfilling of existing internal roads. This issue will be solved during the period of works. |
| | | Question : There are fields along this road section. Will pipes be provided at the exit roads. | PIU's reply . The project design envisages major road repairs, including the construction of exit roads. If necessary, additional exits will be made. This issue will be further considered together with representatives of village administration, local residents at the stage of capital repair works. |
| | | Question : Is lighting installed? When will work begin? | PIU's reply . Lighting installation is not provided. The developed project is aimed at carrying out Rehabilitation of the existing road. Major renovation work is planned for the 2024 construction season. The Ministry of Transport and Communications of the Kyrgyz Republic needs to complete the preparation of the necessary documents in accordance with ADB requirements and select a contractor. |

| Date | Participants | Reviewed issues | Questions and replies for review |
|------|--------------|--|---|
| | | No questions from local population were raised. Thanks were expressed to ADB, MOTC KR, CSC and a kind request to start the planned works as early as possible. | In addition, PIU is informed that prior to commencement of works, specialists from PIU, CSC and Contractor will additionally visit the village for additional meeting and, if necessary, to discuss technical issues. |

Photos. s.Tendik, public consultations.



List of participants in public consultations.

ТИЗМЕ катышуучулар /СПИСОК присутствующих

Өтүүчү жер / Место проведения Тендик

«25» 07 2024 г.

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| Date | Participants | Reviewed issues | Questions and replies for review |
|--|--|---|---|
| village Cholpon. The section of the road from the Roundabout to the village of Tendik, 2.9 km long. | | | |
| 07.25.2024, 14:00- 14:30 With. Cholpon | PIU/MOTC Asylber Abdygulov - ES, PIU/ADB; Aibek Kashimov - Socail expert PIU/ADB <u>Roughton International Ltd.</u> and sub-consultants <u>RAM Engineering Associates LLC.</u> Eldar Samarkulov - DTL ; | Local population informed about planned works major from “Road section leading from the main project site to the entrance to Chopon v., 410 m long”. Road category IV, width of asphalt pavement 6.5 m, shoulders 1.5 meters, asphalt thickness 9 cm, replacement of existing culverts, marking and installation of road signs are planned. Information is also provided on existing <i>Grievance redress mechanisms</i> . This step is to improve and accelerate community feedback. Provided information on mitigation of environmental and social impacts. | |
| | | Question : Is it possible to install lighting and sidewalks? When will work begin? | PIU's reply . Installation of lighting and construction of sidewalks is not provided. The developed project is aimed at carrying out Rehabilitation of the existing road. Major renovation work is planned for the 2024 construction season. MOTC KR needs to complete the preparation of the necessary documents in accordance with ADB requirements and select a contractor. |
| | | Question : Where will the old asphalt be removed? | PIU's reply . During major, the old asphalt is planned to be removed and transported to the existing dumps. However, in coordination with the Village Administration, CSC and PIU may consider the use of old asphalt for backfilling of existing internal roads. This issue will be solved during the period of works. |
| | | Question : There is a culvert at the exit from the main project site towards Cholpon v. It needs to be repaired. | PIU's reply . The project design envisages major road repairs, including replacement of old culverts if required. This issue will be additionally studied jointly with Village Administration representatives at the stage of capital repair works. |

| Date | Participants | Reviewed issues | Questions and replies for review |
|------|--------------|---|---|
| | | No questions from local population were raised. | In addition, PIU is informed that prior to commencement of works, specialists from PIU, CSC and Contractor will additionally visit the village for additional meeting and, if necessary, to discuss technical issues. |

Photos. Cholpon village, public consultations.



List of participants in public consultations.

ТИЗМЕ катышуучулар /СПИСОК присутствующих

Өтүүчү жер / Место проведения Чолпон

«25» июль 2024г.

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| 1 | Дүймөтбеков уулу АИ | 0702 211157 | <i>[Signature]</i> |
| 2 | Өмүрбеков Райтик | 0706 094112 | <i>[Signature]</i> |
| 3 | Алишамширова Ф | 0703 5292 52 | <i>[Signature]</i> |
| 4 | Ибраһимов А | 0700 300622 | <i>[Signature]</i> |
| 5 | Каримовбек к.Т | 0505 56 6882 | <i>[Signature]</i> |
| 6 | Сатобалчиева А. | 0703 46626 | <i>[Signature]</i> |
| 7 | Асанов Тимур | 0702 328490 | <i>[Signature]</i> |
| 8 | Караимов уулу Рашид | 0707 144274 | <i>[Signature]</i> |
| 9 | Чарбаев Д. | 0702 802265 | <i>[Signature]</i> |
| 10 | Найбеталиев К | 0502 869675 | <i>[Signature]</i> |
| 11 | Аржымал уулу Ф | 0755 086835 | <i>[Signature]</i> |
| 12 | Ахмедов уулу К | 0708 23 0292 | <i>[Signature]</i> |
| 13 | Алиев Т | 0402 111720 | <i>[Signature]</i> |
| 14 | Саодатов Н. | 0700 302617 | <i>[Signature]</i> |
| 15 | Алиев уулу Бекжан | 0704 870857 | |
| 16 | Тамбиев Аман | 0702 105510 | |
| 17 | Токмонов Максат | | <i>[Signature]</i> |
| 18 | Хамидов уулу Арсен | 0505 310717 | <i>[Signature]</i> |
| 19 | Исраков Крайшат | 0700 013147 | <i>[Signature]</i> |
| 20 | Умталиева Самканов | 0702-24 24 52 | <i>[Signature]</i> |
| | Алкодаров Абас | 0707-68-9459 | <i>[Signature]</i> |
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басар

| Date | Participants | Reviewed issues | Questions and replies for review |
|---|---|---|---|
| village of Kum-Dobo. The section of the road from Kum-Dobo village to Shamshi village is 3.86 km long. | | | |
| 07/25/2024, 15:00- 15:30 With. Kum-Dobo | PIU/MOTC Asylber Abdygulov - ES, PIU/ADB; Aibek Kashimov - Socail expert PIU/ADB <u>Roughton International Ltd.</u> <u>and sub-consultants</u> <u>RAM Engineering Associates LLC.</u> Eldar Samarkulov - DTL | Local population informed about planned works major "Road section from Kum-Dobo v. to Shamshi v., length 3.86 km." Road category IV, width of asphalt pavement 6.5 m, shoulders 1.5 meters, asphalt thickness 9 cm, replacement of existing culverts, marking and installation of road signs are planned. Information is also provided on existing <i>Grievance redress mechanisms</i> . This step is to improve and accelerate community feedback. Provided information on mitigation of environmental and social impacts. | |
| | | Question : There are fields along this road section. Will pipes be provided at the exit roads. | PIU's reply . The project design envisages major road repairs, including the construction of exit roads. If necessary, additional exits will be made. This issue will be further considered together with representatives of village administration, residents at the stage of capital repair works. |
| | | No questions from local population were raised. Thanks were expressed to ADB, MOTC KR, CSC and a kind request to start the planned works as early as possible. | In addition, PIU is informed that prior to commencement of works, specialists from PIU, CSC and Contractor will additionally visit the village for additional meeting and, if necessary, to discuss technical issues. |

Photos. Kum-Dobo village, public consultations.



| Date | Participants | Reviewed issues | Questions and replies for review |
|--|---|--|---|
| village Mantysh. The section of the road from the village of Kum-Dobo - the village of Komsomol, with a length of 17.6 km, the section of the road from the village of Komunizm - the village of Ortok, with a length of 800 m. | | | |
| 07/25/2024, 16:00- 16:30 With. Mantysh | <u>PIU/MOTC</u> Asylber Abdygulov - ES, PIU/ADB; Aibek Kashimov - Socail expert PIU/ADB <u>Roughton International Ltd.</u> <u>and sub-consultants</u> <u>RAM Engineering</u> <u>Associates LLC.</u> Eldar Samarkulov - DTL ; | Local population informed about planned works, in particular, major “road section from Kum-Dobo v. to Komsomol v., length 17.6 km, road section from Komunizm v. to Ortok v., length 800 m. Road category IV, width of asphalt pavement 6.5 m, shoulders 1.5 meters, asphalt thickness 9 cm, replacement of existing culverts, marking and installation of road signs are planned. Works are planned for 2024 construction season. Information is also provided on existing <i>Grievance redress mechanisms</i> . This step is to improve and accelerate community feedback. Provided information on mitigation of environmental and social impacts. | |
| | | Question : There are fields along this road section. Will pipes be provided at the exit roads. Whether pipe repairs are foreseen . | PIU's reply .The project design envisages major road repairs, including the construction of exit roads and culverts replacement. If necessary, additional exits will be made and culverts will be replaced. This issue will be further considered together with representatives of village administration, residents at the stage of capital repair works. |
| | | Question : Whether lighting and sidewalks are to be installed. When work will start. | PIU's reply . Installation of lighting and construction of sidewalks is not provided. Project design is aimed at capital repair of the existing road. The issue of sidewalk construction will be considered during the works phase. Major are scheduled for 2024 construction season. For MOTC KR is necessary to prepare the necessary documents in accordance with ADB guidelines and select the contractor. |

| Date | Participants | Reviewed issues | Questions and replies for review |
|------|--------------|---|--|
| | | <p>No questions from local population were raised. Thanks were expressed to ADB, MOTC KR, CSC and a kind request to start the planned works as early as possible.</p> | <p>In addition, PIU is informed that prior to commencement of works, specialists from PIU, CSC and Contractor will additionally visit the village for additional meeting and, if necessary, to discuss technical issues.</p> |

Photos. Mantysh village, public consultations.



List of participants in public consultations.

ТИЗМЕ катышуучулар /СПИСОК присутствующих

Өтүүчү жер / Место проведения Мангаш 17-кч 03-кч
«25» июль 2024 г.

| № | Фамилиясы Аты Атасынын аты / Ф.И.О | Телефон | Кол коюу Подпись |
|----|------------------------------------|---------------|---------------------|
| 1 | Калчибеков Грандбер Т | 0509 02 22 66 | |
| 2 | Шамббек уулу ТИ | 0709 94 89 90 | |
| 3 | Озукоев Карымбетей | 0502 57 76 84 | |
| 4 | Мухомасадирова И | 0705 13 29 86 | |
| 5 | Бекмуратов Калмак | | |
| 6 | Ишенбеков Аманбек | | |
| 7 | Мурсакулов Бекмурат | | |
| 8 | Садыков Мурмунаев | | |
| 9 | Койчуманов Маммунаев | 0702 30 34 10 | |
| 10 | Мухамбетов уулу Арсланбек | 0705 66 00 58 | |
| 11 | Рискунов Дулаамбек Сагдарбекович | 0702 67 66 29 | |
| 12 | Кайыраев Трайманбетей | 0700 58 29 33 | |
| 13 | Торукбаев М. А | | |
| 14 | Жуманалиев И | | |
| 15 | Конакбаев Б. О | | |
| 16 | Соодалиев А. О. | 0700 21 79 00 | |
| 17 | Сатаров З. Т. | 0703 96 96 28 | |
| 18 | Тордошев М. А | 0709 82 90 39 | |
| 19 | Исаков М. Р. | 0705 03 80 80 | |
| 20 | Ишкеев Н. И. | 0502 40 59 26 | |
| 21 | Бектотгулов З. А | 0502 07 83 83 | |
| 22 | Мамдобулов А. А | 0707 83 83 89 | |
| 23 | Иманалиев Р. | 0700 86 92 16 | |
| 24 | Торкунбаев уулу А | 0700 15 16 30 | |

| | | | |
|----|---------------------------|--------------|----------|
| 25 | Мурзабекова М. Б | 0700040545 | Feb |
| 26 | Сорубекова А | 0709502972 | с. И. И. |
| 27 | Тургулбек к Табаркун | 0500 9017-15 | Feb |
| 28 | Жапарбекова Бумина | 0502 247543 | Feb |
| 29 | Кадыр улу Азамат | 0502 219898 | Feb |
| 30 | Нумолдиев Арстан | 0704270934 | Feb |
| 31 | Медербеков Максатбек | 0709433081 | Feb |
| 32 | Абакиров М. | 0701 873742 | Feb |
| 33 | Сейтемишев у | 0535 046473 | Feb |
| 34 | Назаров Су | 0709702062 | Feb |
| 35 | Демонкулов Н | 0700 084332 | Feb |
| 36 | Висошов М | 0702 624896 | Feb |
| 37 | Сотуналиев К. | 070527 0389 | Feb |
| 38 | Жудайбергенов И. | 0504888049 | Feb |
| 39 | Куров Р | 070416 0989 | Feb |
| 40 | Саматбеков у Р | 707 64 01 77 | Feb |
| 41 | Салмакчиев Су. | 705 2902 33 | Feb |
| 42 | Исатов Б. | 502 78 8503 | Feb |
| 43 | Салмакчиев у | 700 653473 | Feb |
| 44 | Жума у Аманжол | 0702 240029 | Feb |
| 45 | Зармаков Жамал | 0707776997 | Feb |
| 46 | Талман у Аман | 704 15555 | Feb |
| 47 | Тургулбек Аманжол Аманжол | 0702051855 | Feb |
| | | | |
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ТИЗМЕ катышуучулар /СПИСОК присутствующих

Өтүүчү жер / Место проведения Тяньцзинь

«25» 07 2024 г.

| № | Фамилиясы Аты Атасынын аты / Ф.И.О | Телефон | Кол коюу Подпись |
|----|------------------------------------|-------------|---------------------|
| 1 | Самангиев Аралбек | 0705 622982 | |
| 2 | Жылкыбаева Райкан | 0500 990958 | |
| 3 | Абдыкалыков Жуманур | 0550 214556 | |
| 4 | Абдолдаев Таалайбек | 0704 257769 | |
| 5 | Цориев Бердибек | 0705 502135 | |
| 6 | Жаңышинов Бактибек | 0707 323627 | |
| 7 | Асабаев Ризидат | 0704 020767 | |
| 8 | Чыңгызбаев Улан | 0707 414733 | |
| 9 | Самангиев Малант | 0707 140280 | |
| 10 | Алтынгулова Розул | 0705 148083 | |
| 11 | Соржонкобаев Ж | 0501 992289 | |
| 12 | Жакемолжолон К | 0502 232522 | |
| 13 | Кармишанова Б | 0505 540772 | |
| 14 | Темурбек у Я | 0705 454302 | |
| 15 | Жапаров К Бурган | 0700 057833 | |
| 16 | Жылкыбаева Жуман | 0203 347648 | |
| 17 | Жаманбаев Г | 706 534862 | |
| 18 | Жанов У | 709 843018 | |
| 19 | Жанбаев К | 706 57462 | |
| 20 | Жуманов И К | 706 905042 | |
| 21 | Мусаева Атаркул | 0709 086911 | |
| 22 | Рахимов Маирал | 0700 474749 | |
| 23 | Камалиев Фархад | 0700 573410 | |
| 24 | Кушангулова Венера | 0700 501420 | |
| 25 | Абдыгапаров Р | 0700 358456 | |

Appendix 3. Results of instrumental and laboratory studies.



Аттестат аккредитации
№КР0417/КЦА.ИЛ.049
от 12.08.2022
* - Вне аккредитации

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ,
ЭКОЛОГИЯ ЖАНА ТЕХНИКАЛЫК КӨЗӨМӨЛ
МИНИСТРЛИГИНЕ КАРАШТУУ
ЭКОЛОГИЯЛЫК МОНИТОРИНГ ДЕПАРТАМЕНТИ

ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА
ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И
ТЕХНИЧЕСКОГО НАДЗОРА КЫРГЫЗСКОЙ РЕСПУБЛИКИ

720005, г. Бишкек, ул. Байтик-Багыра, 34

тел. (312) 54-61-26

ПРОТОКОЛ ИСПЫТАНИЙ ПРОБ АТМОСФЕРНОГО ВОЗДУХА

№ 273 -281

1. Наименование предприятия, организации (заявитель):

Нарынская область, ОсОО «Джосинт Венчур Синогидро-Пауэр Чайна роуд Бридж», автодорога Балыкчы-Куакы и Кочкор-Эпкин.

2. Регистрационный номер и место отбора проб:

*273- Балыкчы 0+440;
274- Балыкчы 1+100;
275 – Ак-Өлөң- Оттук 0+340;
276 - с.Шамшы 1+400;
277 – с.Осовиахим 5+00;
278 – с.Комсомол 15+00;
279 – с.Комсомол 17+00;
280 -с. Чолпон 0+410;
281 – с.Тендик 0+000.*

3. Дата и время отбора проб:

21.06.2024г.

4. Нормативный документ:

ГОСТ 17.2.4.06 – 90 «Охрана природы. Атмосфера. Методы определения скорости и расхода газопылевых потоков, отходящих от стационарных источников загрязнения». ГОСТ 17.2.4.07 – 90 «Охрана природы. Атмосфера. Методы определения давления и температуры газопылевых потоков, отходящих от стационарных источников загрязнения».

5. Дата(ы) проведения испытаний:

24.06-25.06.2024г.

6. Результаты испытаний:

Стр. 1 из 5

| Наименование определяемого показателя ✓ | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ПДК макс.раз. мг/м ³ | Испытания провел |
|---|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | РД 52.04.186-89 | 03-273-24 | 0,085±0,010 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | РД 52.04.186-89 | 03-273-24 | 0,155 ±0,028 | 0,085 | |
| Оксид углерода | СТП ДЭМ 03-01-2021 СТП ДЭМ 03-02-2021 | 03-273-24 | 0,8 ±0,16 | 5,0 | |
| Взвешенные вещества | РД 52.04.186-89 | 03-273-24 | 0,166 ±0,042 | 0,5 | |

| Наименование определяемого показателя ✓ | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ПДК макс.раз. мг/м ³ | Испытания провел |
|---|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | РД 52.04.186-89 | 03-274-24 | 0,092±0,011 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | РД 52.04.186-89 | 03-274-24 | 0,188±0,034 | 0,085 | |
| Оксид углерода | СТП ДЭМ 03-01-2021 СТП ДЭМ 03-02-2021 | 03-274-24 | 0,9 ±0,18 | 5,0 | |
| Взвешенные вещества | РД 52.04.186-89 | 03-274-24 | 0,166 ±0,042 | 0,5 | |

| Наименование определяемого показателя ✓ | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ПДК макс.раз. мг/м ³ | Испытания провел |
|---|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | РД 52.04.186-89 | 03-275-24 | 0,073±0,009 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | РД 52.04.186-89 | 03-275-24 | 0,140 ±0,025 | 0,085 | |
| Оксид углерода | СТП ДЭМ 03-01-2021 СТП ДЭМ 03-02-2021 | 03-275-24 | 1,1 ±0,22 | 5,0 | |
| Взвешенные вещества | РД 52.04.186-89 | 03-275-24 | 0,333 ±0,083 | 0,5 | |

| Наименование определяемого показателя | ✓ | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ЦДК макс.раз. мг/м ³ | Испытания провел |
|---------------------------------------|---|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | ✓ | РД 52.04.186-89 | 03-276-24 | 0,085 ±0,010 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | | РД 52.04.186-89 | 03-276-24 | 0,115 ±0,028 | 0,085 | |
| Оксид углерода | | СТП ДЭМ 03-01-2021 СТП ДЭМ 03-02-2021 | 03-276-24 | 1,4 ±0,28 | 5,0 | |
| Взвешенные вещества | | РД 52.04.186-89 | 03-276-24 | 0,166 ±0,042 | 0,5 | |

| Наименование определяемого показателя | ✓ | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ЦДК макс.раз. мг/м ³ | Испытания провел |
|---------------------------------------|---|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | ✓ | РД 52.04.186-89 | 03-277-24 | 0,058 ±0,007 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | | РД 52.04.186-89 | 03-277-24 | 0,126±0,023 | 0,085 | |
| Оксид углерода | | СТП ДЭМ 03-01-2021 СТП ДЭМ 03-02-2021 | 03-277-24 | 1,1 ±0,22 | 5,0 | |
| Взвешенные вещества | | РД 52.04.186-89 | 03-277-24 | 0,250±0,063 | 0,5 | |

| Наименование определяемого показателя | ✓ | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ЦДК макс.раз. мг/м ³ | Испытания провел |
|---------------------------------------|---|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | ✓ | РД 52.04.186-89 | 03-278-24 | 0,090±0,011 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | | РД 52.04.186-89 | 03-278-24 | 0,158 ±0,029 | 0,085 | |
| Оксид углерода | | СТП ДЭМ 03-01-2021 СТП ДЭМ 03-02-2021 | 03-278-24 | 1,4±0,28 | 5,0 | |
| Взвешенные вещества | | РД 52.04.186-89 | 03-278-24 | 0,166 ±0,042 | 0,5 | |

| Наименование определяемого показателя | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ПДК макс.раз. мг/м ³ | Испытания провел |
|---------------------------------------|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | РД 52.04.186-89 | 03-279-24 | 0,085 ±0,010 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | РД 52.04.186-89 | 03-279-24 | 0,130±0,023 | 0,085 | |
| Оксид углерода | СПП ДЭМ 03-01-2021 СПП ДЭМ 03-02-2021 | 03-279-24 | 1,6 ±0,32 | 5,0 | |
| Взвешенные вещества | РД 52.04.186-89 | 03-279-24 | 0,250±0,063 | 0,5 | |

| Наименование определяемого показателя | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ПДК макс.раз. мг/м ³ | Испытания провел |
|---------------------------------------|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | РД 52.04.186-89 | 03-280-24 | 0,114 ±0,014 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | РД 52.04.186-89 | 03-280-24 | 0,122 ±0,022 | 0,085 | |
| Оксид углерода | СПП ДЭМ 03-01-2021 СПП ДЭМ 03-02-2021 | 03-280-24 | 1,2±0,24 | 5,0 | |
| Взвешенные вещества | РД 52.04.186-89 | 03-280-24 | 0,166 ±0,042 | 0,5 | |

| Наименование определяемого показателя | НД на метод испытаний | Код пробы | Данные анализа по точкам, мг/м ³ | ПДК макс.раз. мг/м ³ | Испытания провел |
|---------------------------------------|--|-----------|---|---------------------------------|-----------------------------------|
| Диоксид серы | РД 52.04.186-89 | 03-281-24 | 0,111 ±0,013 | 0,5 | Сулайманова А.Т. Райкеева Р.Н. |
| Диоксид азота | РД 52.04.186-89 | 03-281-24 | 0,166 ±0,030 | 0,085 | |
| Оксид углерода | СПП ДЭМ 03-01-2021 СПП ДЭМ 03-02-2021 | 03-281-24 | 1,7±0,34 | 5,0 | |
| Взвешенные вещества | РД 52.04.186-89 | 03-281-24 | 0,250 ±0,063 | 0,5 | |

ПДК загрязняющих веществ в атмосферном воздухе населенных мест» Постановлением Правительства КР №201 (прил. №17) от 11 апреля 2016г. Неопределенность измерений. Неопределенность измерений, возникающая в результате отбора проб, включена в расширенную неопределенность измерений.

Сообщаемая расширенная неопределенность измерения указывается как суммарная стандартная неопределенность измерения, умноженная на коэффициент охвата $k=2$, который обеспечивает уровень доверия приблизительно 95%. Неопределенность измерений, возникающая в результате отбора проб, включена в расширенную неопределенность измерений.

Заключение*: По результатам проведенных испытаний атмосферного воздуха превышение предельно-допустимой концентрации (ПДК) максимально разовой, обнаружено по диоксиду азота – в точке №273 - в 1,8 раз; в точке №274 - в 2,2 раза; в точке №275 - в 1,65 раз; в точке №276 - в 1,35 раз; в точке №277 - в 1,48 раз; в точке №278 - в 1,86 раз; в точке №279 - в 1,53 раза; в точке №280 - в 1,44 раза; в точке №281 - в 2 раза. Остальные испытания в пределах установленных норм.

Главный специалист СМАВ

Жолдошбекова З.Ж.

Заведующая отдела ОАМКОП

Дарбакова А.С.



*Исполнитель не несет ответственности, если проба отобрана с нарушением
Перечислена протокола без разрешения ДЭМ заведующая
СМАВ – сектор мониторинга атмосферного воздуха (промышленных выбросов)
ОАМКОП - отдел анализа, контроля и координации отбора проб.*

Конец протокола.

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ, ЭКОЛОГИЯ ЖАНА
ТЕХНИКАЛЫК КӨЗӨМӨЛ МИНИСТРЛИГИНЕ КАРАШТУУ
ЭКОЛОГИЯЛЫК МОНИТОРИНГ ДЕПАРТАМЕНТИ

ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА
ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И ТЕХНИЧЕСКОГО НАДЗОРА
КЫРГЫЗСКОЙ РЕСПУБЛИКИ

720005, г. Бишкек, ул. Байтик Баатыра, 34

тел. (312) 54-61-26

ПАСПОРТ НА ПРОБУ
(атмосферный воздух)

1. **Наименование, адрес объекта:** Нарынская обл. Додо, Оттолик Вектур
Синоширо-Пауэр Чайна Роду Бридс; автодорога Балыкча-Кула
и Кочкор-Экил
2. **Основание для отбора:** Договор, заказ № 602-06 от 2024 06.07.06.2024г
3. **Порядковый номер и место отбора проб:**
1. г. Балыкча 0+440
2. г. Балыкча 1+100
3. А.т. Ош-Огуз 0+340
4. с. Шакин 1+400
5. с. Осавияшик 5+00
6. с. Каманак 15+00
7. с. Каманак 17+00
8. с. Чокмок 0+410
9. Вектур 0+000
4. **Цель отбора:** Определение качества воздуха.
5. **Характер отобранных проб:** Разовой
6. **Условия окружающей среды:** Облачно
7. **Температура перед аспиратором:** 22°C
8. **Атмосферное давление:** 616 мм рт.ст.
9. **Дата отбора проб:** 21.06.2024г
10. **НД на отбор проб:** ГОСТ 33007-2014, 17.2.4.06-90

Пробы отобрал:

Представитель ДЭМ Вед. специалист Мурзурова А

(должность, фамилия)

Присутствовали:

Госинспектор

(должность, фамилия)

Представитель предприятия

(должность, фамилия) И.И.И. Эманов



Аттестат аккредитации
№КГ417/КЦА.ИЛ.049
от 12.08.2022
* - Вне аккредитации

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ
ЭКОЛОГИЯ ЖАНА ТЕХНИКАЛЫК КӨЗӨМӨЛ
МИНИСТРЛИГИНЕ КАРАШТУУ
ЭКОЛОГИЯЛЫК МОНИТОРИНГ ДЕПАРТАМЕНТИ

ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА
ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И
ТЕХНИЧЕСКОГО НАДЗОРА КЫРГЫЗСКОЙ РЕСПУБЛИКИ

720005, г. Бишкек, ул. Байтик-Баатыра, 34

тел. (312) 54-61-26

**ПРОТОКОЛ ИСПЫТАНИЙ
ПРОБ ВОДЫ**

№ 347 - 355

1. Наименование предприятия, организации (заявитель):

Нарынская область, ОсОО «Джоинт Венчур Синогидро-Пауэр Чайна Роуд Бридж», автодорога Балыкчы-Куакы и Кочкор-Эпкин.

2. Регистрационный номер и место отбора проб:

347 – Река Чу, село Таш-Сарай;

348 – Ирригационный канал;

349 – река Чу, Гидропост;

350 – Ак Олон-Оттук;

351 – село Комсомол;

352 – речка Жер-Корунду выше и ниже моста;

353 – речка Саздын суусу выше и ниже моста;

354 – речка Мукандын-Суусу выше и ниже моста;

355 – река Жоон-Арык выше и ниже моста.

3. Дата и время отбора проб:

21.06.24г. с 10:30 часов.

4. Нормативный документ:

Правила охраны поверхностных вод КР от 14 марта 2016-год №128; ГОСТ 31861-2012 Вода. Общие требования к отбору проб.

5. Дата(ы) проведения испытаний:

24.06.-01.07.2024г.

6. Результаты испытаний:

Стр. 1 из 3

| № п/п | Наименование определяемого показателя | Ед. изм. | Данные анализа по точкам | | | ПДК | | НД на метод испытаний | Испытания провел |
|-------|---|----------|--------------------------|-------------|-------------|--------------------|-------------------------|-----------------------------------|------------------|
| | | | 01-347-24 ✓ | 01-348-24 ✓ | 01-349-24 ✓ | + | ++ | | |
| 1 | Прозрачность | см | 40,50 | 40,00 | 39,00 | - | СЭВ ч.1 М. 1977* | Жунусова А.А. | |
| 2 | Взвешенные вещества | мг/л | 2,60 | 2,80 | 3,00±0,90 | Увел. 0,25/0,75 | ПНД Ф14.1:2:3.110-97 | | |
| 3 | Биохимическое потребление кислорода (БПК ₅) | мгО/л | 0,85±0,22 | 0,82±0,21 | 0,98±0,25 | 3,0 4,0 | ПНД Ф 14.1:2:3:4.123-97 | Кутманбаева Г.К. Жунусова А.А. | |
| 4 | Нефтепродукты | мг/л | 0,014±0,005 | 0,019±0,007 | 0,017±0,006 | 0,05 0,3 | ПНД Ф 14.1:2:4.128-98 | | |

| № п/п | Наименование определяемого показателя | Ед. изм. | Данные анализа по точкам | | | ПДК | | НД на метод испытаний | Испытания провел |
|-------|---|----------|--------------------------|-------------|-------------|--------------------|-------------------------|-----------------------------------|------------------|
| | | | 01-350-24 ✓ | 01-351-24 ✓ | 01-352-24 ✓ | + | ++ | | |
| 1 | Прозрачность | см | 36,00 | 38,00 | 32,00 | - | СЭВ ч.1 М. 1977* | Жунусова А.А. | |
| 2 | Взвешенные вещества | мг/л | 3,40±1,02 | 3,20±0,96 | 3,80±1,14 | Увел. 0,25/0,75 | ПНД Ф14.1:2:3.110-97 | | |
| 3 | Биохимическое потребление кислорода (БПК ₅) | мгО/л | 1,04±0,28 | 1,16±0,30 | 1,32±0,34 | 3,0 4,0 | ПНД Ф 14.1:2:3:4.123-97 | Кутманбаева Г.К. Жунусова А.А. | |
| 4 | Нефтепродукты | мг/л | 0,047±0,016 | 0,046±0,016 | 0,050±0,018 | 0,05 0,3 | ПНД Ф 14.1:2:4.128-98 | | |

| № ш/п | Наименование определяемого показателя | Ед. изм. | Данные анализа по точкам | | | ПДК | | НД на метод испытаний | Испытания провел |
|-------|---|----------|--------------------------|-------------|-------------|--------------------|-------------------------|-----------------------|------------------|
| | | | 01-353-24 ✓ | 01-354-24 ✓ | 01-355-24 ✓ | + | ++ | | |
| 1 | Прозрачность | см | 37,00 | 17,00 | 35,00 | - | СЭВ ч.1 М. 1977* | Жунусова А.А. | |
| 2 | Взвешенные вещества | мг/л | 3,60±1,08 | 8,40±2,52 | 3,80±1,14 | Увел. 0,25/0,75 | ПНД Ф14.1.2:3.110-97 | Жунусова А.А. | |
| 3 | Биохимическое потребление кислорода (БПК ₅) | мг/л | 1,06±0,27 | 2,98±0,77 | 1,32±0,34 | 3,0 4,0 | ПНД Ф 14.1.2:3:4.123-97 | Кутманбаева Г.К. | |
| 4 | Нефтепродукты | мг/л | 0,054±0,019 | 0,038±0,013 | 0,032±0,011 | 0,05 0,3 | ПНД Ф 14.1.2:4.128-98 | Жунусова А.А. | |

Правила охраны поверхностных вод Кыргызской Республики от 14 марта 2016 год № 128

+Перечень ПДК для рыбохозяйственного водопользования

++Перечень ПДК хозяйственно-питьевого и культурно-бытового водопользования

Предельно допустимые концентрации химических веществ в воде, водных объектах хозяйственно-питьевого и культурно бытового водопользования, утвержден

Постановлением Правительства КР от 11 апреля 2016г. №201.

Сообщаемая расширенная неопределенность измерения указывается как суммарная стандартная неопределенность измерения, умноженная на коэффициент охвата k=2, который обеспечивает уровень доверия приблизительно 95%. Неопределенность измерений, возникающая в результате отбора проб, включена в расширенную неопределенность измерений.

Заключение*: По результатам химического анализа, в отобранных пробах воды, превышение ПДК (предельно-допустимая концентрация) для культурно-бытовой и рыбо-хозяйственной категории не обнаружено по всем определяемым показателям.

Заведующая ОМВР

Заведующая ОАМКОП



Кутманбаева Г.К.

Дарбакова А.С.

Исполнитель не несет ответственности, если проба отобрана салима жамалыком
Перевыплата провозглашена без разрешения ДЭМ записки.
ОМВР – отдел мониторинга водных ресурсов (поверхностных и сточных вод)
ОАМКОП – отдел аналитики, метрологии и координации отбора проб.

Конец протокола.

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ЖАРАТЫЛЫШ РЕСУРСТАРЫ, ЭКОЛОГИЯ ЖАНА
ТЕХНИКАЛЫК КӨЗӨМӨЛ МИНИСТРЛИГИНЕ КАРАШТУУ
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ДЕПАРТАМЕНТ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА
ПРИ МИНИСТЕРСТВЕ ПРИРОДНЫХ РЕСУРСОВ, ЭКОЛОГИИ И ТЕХНИЧЕСКОГО НАДЗОРА
КЫРГЫЗСКОЙ РЕСПУБЛИКИ

720005, г. Бишкек, ул. Байтик Баатыра, 34

тел. (312) 54-61-22

ПАСПОРТ НА ПРОБУ

(вода)

1. Наименование, адрес объекта: Наранская обл. Өс.00, Отмань Велтур
Синошаро - Мауэр Чайна Роуд Бридж" автодорога Балаша-Кулак
и Кочкор - Тикит
2. Основание для отбора: Водокор, заявка № В-02-06.кв.2024
от 07.06.2024г.
3. Порядковый номер и место отбора проб:
1. Река Чу село Таш-Сарай
2. Урригационнокой канал
3. Река Чу, Гидро пост
4. Лк Олол - Орун
5. Село Кансайыл
6. Река Жар-Коргуду до и после моста
7. Река Сагдык сууу до и после моста
8. Река Туркандок - Сууу до и после моста
9. Река Жарк-Арык до и после моста
4. Цель отбора: Определение качества воды
5. Характер отобранных проб: Рыбной
6. Условия окружающей среды: Самеки
7. Дата отбора проб: 21.06.2024г.
8. НД: ГОСТ 31861-2012 "Вода. Общие требования к отбору проб"; ПНД Ф 12.15.1-08 Методические
указания по отбору проб для анализа сточных вод.

Пробы отобрал:

Представитель ДЭМ

(должность, фамилия)

Присутствовали:

Госинспектор

(должность, фамилия)

Представитель предприятия

(должность, фамилия)

Вед. специалист Муридиев А

ЦНИИ эколог

М. Беченов

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