

# Initial Environmental Examination

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July 2017

## KGZ: Central Asia Regional Economic Cooperation Corridors 1 and 3 Connector Road Project —Additional Financing

Prepared by Japan Overseas Consultants/DI KYRGYZDORTANSPROEKT for the Ministry of Transport and Roads and for the Asian Development Bank.

This initial environmental examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

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## **Initial Environmental Examination Reports**

1. Section “Balykchy [Km 0] to Kilometer Post 43 [Km43]”
2. Section “Kochkor [Km 64] to Epkin [Km 89]”

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*Subject: CAREC Corridors 1 and 3 Connector Road Project (Bishkek–Osh and Bishkek–Naryn–Torugart Road). Initial Environmental Examination (IEE).*

Ministry of transport and roads of KR has no objections to publishing the final reports “Initial Environmental Examination” for sections “Balykchi (km 0) – km 43”, “Kochkor (km 64) – Epkin (km 89)” on ADB web-site.

This document has been prepared in accordance with the environmental legislation of the Kyrgyz Republic and the Asian Development Bank Safeguard Policy, as well as considering the possibility of implementation and monitoring by MOTR KR.

The Ministry of Transport and Roads of the Kyrgyz Republic finds possible to update and complement these reports during the project if necessary, subject to preliminary agreement with ADB.

**Yours faithfully,**

**Deputy minister**

**A. Jusubaliev**

# Initial Environmental Examination

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July 2017

## KGZ: Central Asia Regional Economic Cooperation Corridors 1 and 3 Connector Road Project —Additional Financing (Section “Balykchy [Km 0] to Kilometer Post 43 [Km 43]”)

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## Initial Environmental Examination

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**Project No.: TA 8887-KGZ  
July 2017**

### **KGZ: CAREC Corridors 1 and 3 Connector Road Project (Section Balykchy (Km 0) to kilometer - post 43 (Km 43))**

This Initial Environment Examination in Detailed Design Stage was prepared by Japan Overseas Consultants/ DI"KYRGYZDORTTRANSPROEKT for the Ministry of Transport and Roads of Kyrgyz Republic and for the Asian Development Bank, by updating the IEE Report in the Feasibility Stage prepared by Kocks Consult GmbH / Finnish Overseas Consultants Ltd. / CAC Consulting.

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## **ABBREVIATIONS**

ADB	-	Asian Development Bank
ADT	-	Average Daily Traffic
AIDS	-	Acquired Immune Deficiency Syndrome
AP	-	Affected People
BoQ	-	Bill of Quantities
CAREC	-	Central Asia Regional Economic Cooperation
CEWP		Construction Environmental Work Plan
CITES	-	Convention on International Trade in Endangered Species
CO	-	Carbon Monoxide
CSC	-	Construction Supervision Consultant
CW	-	Civil Works
dBA	-	A-weighted decibels
DO	-	Dissolved oxygen
EA	-	Executing Agency
EIA	-	Environmental Impact Assessment
EIP	-	Environmental Impact Permit
EMoP	-	Environmental Monitoring Plan
EMP	-	Environmental Management Plan
FCM	-	Family Medicine Centres
GRM	-	Grievance Redress Mechanism
h, hr	-	Hour
Ha	-	Hectare
HIV	-	Human Immunodeficiency Virus
IA	-	Implementing Agency
IEE	-	Initial Environmental Examination
IES	-	International Environmental Specialist
IPIG	-	Investment Projects Implementation Group
KDTP	-	Kyrgyzdorttransproekt
Kg	-	Kilogram
Km	-	Kilometer
Kpa	-	Kilopascal
LAR	-	Land Acquisition and Resettlement
LARP	-	Land Acquisition Resettlement Plan
LHS	-	Lefthand Side
Ls	-	Lump Sum
m <sup>2</sup>	-	Square Meter
m <sup>3</sup>	-	Cubic Meter
Max.	-	Maximum
ME	-	Ministry of Economics KR
Min.	-	Minimum
MOF	-	Ministry of Finance KR
MoTR	-	Ministry of Transport and Road of the Kyrgyz Republic
MoCIT		Ministry of Culture, Information and Tourism of the Kyrgyz Republic
MPC	-	Maximum Permissible Concentrations
NES	-	National Environmental Specialist
NGO	-	Non-Governmental Organization
No.	-	Number
NO <sub>2</sub>	-	Nitrogen Dioxide
PAM	-	Project Administration Manual

PAP	-	Project-Affected Person
PBM	-	Performance-based maintenance
PER	-	Public Environmental Review
PPMS	-	Project Performance Management System
PPTA	-	Project Preparatory Technical Assistance
RAP	-	Resettlement Action Plan
RHS	-	Righthand Side
ROW	-	Right-of-Way
RP	-	Resettlement Plan
SA	-	Social Assessment
SAEPF	-	State Agency on Environment Protection and Forestry
SER	-	State Environmental Review
SETI	-	State Ecological and Technical Inspection
SO <sub>2</sub>	-	Sulfur Dioxide
SPS	-	Safeguard Policy Statement
SSEMP	-	Site Specific Environmental Management Plan
TA	-	Technical Assistance
TMP	-	Traffic Management Plan
TOR	-	Terms of Reference
TPH	-	Total Petroleum Hydrocarbon
TSP	-	Total Suspended Particulates
UNFCC	-	United Nations Framework Convention on Climate Change
WHSP	-	Worker's Health and Safety Plan

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## **A. Executive Summary**

### **Introduction**

1. The Government of the Kyrgyz Republic has requested the Asian Development Bank (ADB) to identify, formulate, and prepare an ensuing loan and/or grant for the CAREC Corridors 1 and 3 Connector Road. The main outcome of the PPTA is to prepare a feasibility study suitable for donors financing. The project scope also includes soft components to tackle sector-wide issues. Agreement needs to be reached with the government on the exact details, including: (i) improve efficiency of road asset management in the Kyrgyz Republic, (ii) support the government with institutional reforms in transport sector, (iii) introduce performance based maintenance contracts, and (iv) improve road safety in the Kyrgyz Republic. The proposed Project will improve the following socio-economic indicators of the regions of the Kyrgyz Republic:
  - Reduce the cost of passenger and cargo transportation between southern and Issyk-Kul and Naryn regions by providing direct access.
  - Reduce transport costs due to route cutting and better road conditions.
  - Increase in local and international transportation and movement.
  - Origination of additional income-generating opportunities for local residents
  - Creation of new jobs
  - Good state of vehicles/Reduction of operating costs

The Section “Balykchy (Km 0) to kilometer-post 43 (Km 43)” will be financed by ADB.

2. This is the Initial Environment Examination of Detailed Design Stage Version report for the project in accordance with the legislation of the Kyrgyz Republic and has been prepared by upgrading the previous IEE Report in Feasibility Stage Version, wherever possible, as was initially prepared by KOCKS and approved by ADB. As a result of upgrading, same conclusion as previous IEE was obtained as “With the expected construction scope, no significant adverse or irreversible environmental impacts had been noted in the environmental assessment process”.
3. According to the categorization of ADB Safeguard Policy Statement, the project belongs to category “B” and doesn’t require full Environmental Impact Assessment (EIA). As a part of the ADB Policy, the project requires Initial Environmental Examination (IEE). In accordance with the legislation of the Kyrgyz Republic, this stage is considered as a preliminary environmental impact assessment (Pre-EIA) to feasibility study and shall be documented by EIA report. The Project will not be categorized according to Kyrgyz Republic legislation, however these IEE and Pre-EIA documents might be considered as equivalent.

In the legislation of the Kyrgyz Republic, in accordance with the changes, according to the Regulation on the procedure for conducting environmental impact assessment in the Kyrgyz Republic No. 60 dated February 13, 2015, this stage is considered as Initial Environment Examination at the Detailed Design Stage and is documented in the IEE report. The categorization of projects, according to the legislation of the Kyrgyz Republic, is not carried out, therefore the EIA report and the IEE report can be considered as equivalent.

4. The IEE study for Section “Balykchy (Km 0) to kilometer-post 43 (Km 43)” is being conducted based on secondary information from a number of available sources, while primary data were obtained from field parametric measurements along with the observations gathered from several field visits. Environmental public consultation was done and was attended by residents of the communities mentioned as well as those from surrounding villages.

### **Policy, Legal, and Administrative Framework**

5. The IEE study was in conformance with the national legal framework of Kyrgyzstan consisting of the important laws in environmental protection, water protection, cultural heritage, public health, and other national environmental legislations. In addition, International Treaties that Kyrgyzstan was a signatory were also considered as part of the overall framework.
6. The Environmental assessment in the Kyrgyz Republic is founded on two subsystems:

- (i) OVOS (the Russian acronym for “Assessment of Environmental Impacts”), and
- (ii) Ecological Expertise (State Environmental Review, SER).

The resulting IEE is presented for public consultations, after which revisions are done according to the public’s feedback. Subsequently, the OVOS report, Statement of Environmental Consequences, and other supporting documentations are submitted for the State Environmental Review (SER). After which the project may be approved, rejected or send for re-examination.

7. Under ADB approval requirements, a set of specific safeguard requirements are required to be met by the Borrowing Country in addressing environmental and social impacts and risks. The project would undergo Screening and Categorization, formulation of Environmental Management Plan and Public Disclosure. Public Consultations for Category B would be required so that views of affected groups are taken into account in the design of the Project and within the mitigation measures proposed.

In order to determine the possible impact of project activities on rare and endangered species of animals, as well as data validation as biological resources within the corridor project site Balykchy (0-43 km), located in the zone of the biosphere reserve "Issyk-Kul", on March 27, 2017 the meeting was organized at General Directorate of Biosphere Territory (GDBT) "Issyk-Kul" under the State Agency on Environment Protection and Forestry under the Government of the Kyrgyz Republic, GDBT representatives, representative of ADB, Environmental specialists of IPIG MOTR and EPTISA / JOC.

8. During the discussion regarding the conditions of biological resources in the area of Balykchy road section (km0-43), the rehabilitation of which is being considered in the framework of CAREC Corridor 1 and 3 Connector Road Project Balykchy Section (0 km) to the kilometer post (43 km), the following was confirmed by the representatives of the General Directorate of "Issyk-Kul" Biosphere Reserve:

The section of Balykchy corridor is located, according to the zoning of the biosphere territory of "Issyk-Kul", in the sanitation zone, i.e. in the zone that includes anthropogenically disturbed territories that require regeneration and remediation measures (the Regulation on the Biosphere Territory "Issyk-Kul" approved by the Government of the Kyrgyz Republic on January 24, 2000 No. 40).

The territory of the project section of the road, since the time of construction in the 70s of the 20th century, has been under anthropogenic influence for a long time. Separate cordons or observation stations on this site are not installed due to the lack of such a need.

Rare and endangered species of animals included in the IBAT system and found on the biosphere territory (the list is attached in Section J, IEE), it is in the area of Balykchy Section that they practically do not occur, since they live in high-altitude areas.

In connection with this, carrying out of the rehabilitation works in the specified project section of the road will not have a potential negative impact on the available biological resources of the biosphere territory, including on the Red Book species of animals, on the species of animals included in the IBAT system.

Also, representatives of the GDBT were recommended to act as precautionary mitigating measures within the project and to promote anti-poaching activities that are included in the EMP.

Minutes of Protocol Meeting is presented in Appendix H2.

### **Description of the Project**

9. The project road Section “Balykchy (Km 0) to kilometer-post 43 (Km 43)” is a 43-km east to west highway. This Section begins at a roundabout located at the entrance to Balykchy town. There are 5 roads that converge at this point, and one of which is the Section of the project road, which radiates in the southeast direction. Generally, this Section follows the existing alignment up to post 43 (Km 43). A good stretch of this section (around 29 km) is within Issyk-Kul oblast while around 14 km is within Kochkor District of Naryn Oblast.

10. The details of the proposed road Section project are:
  - Rehabilitate and pave the project road to Technical Category II from Balykchy (Km 0) to kilometer-post 43 (Km 43) according to Kyrgyzstan National Standard with Geometrical and Structural Requirements with 120 km/h design speed.
  - Rehabilitation, repair and/or replacement of bridges and culverts.
  - Construction of side drains and other drainage structures.
  - Provision of retaining walls and river protection measures, where necessary.
  - Provision of adequate road signing and marking.
  - Provision of safety barriers.
11. The road is to be designed according to Kyrgyz geometric design standard, and accordingly, it shall be sufficient to carry the traffic loading efficiently within its projected service life. Effectively, these will be a two-lane road consisting of a carriageway width (sum of the width of lanes) and the width of the shoulders. The design elements for the cross section of the project road are as follows:
  - Number of lanes: 2
  - Lane width: 3.5-3.75 m
  - Carriageway width: 7.00-7.50 m
  - Width of shoulder: 3.25-3.75 m (of which 0.50-0.75 m is paved)
  - Total road width: 15.00 m

### **Description of the Environment**

12. The road corridor is entirely contained within the mountain ranges of the Northern and Inner Tien Shan. The route passes through the mountain and plain part of the Issyk-Kul, Naryn Regions at an altitude of 700 to 3500 m above sea level, crossing the valleys of the rivers Chu. 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 annual rainfall of 390 mm. During the summer months (June-August), the average monthly high temperatures on the shores of the lake are around 20-25°C. Due to the confinement of the Terskey Ala-Too ranges, most of the climatic conditions of the project road are that of Issyk-Kul region. As part of the baseline information, parametric measurements for water quality in selected rivers, along with air quality and noise/vibration in sensitive receptors. Field measurements were done in the end of 2015 and the results are presented in this report.
13. The general characteristics of the areas on according to geo-botanical zones in Tong district - deserted steppe with fragments of forests and spruce forests. The flora of the Issyk-Kul Biosphere Reserve comprises around 1,500 species of plants within which there are some 30 species of very important wild medicinal plants. It has diverse and interesting fauna, with numerous endangered species finding refuge in its many unpopulated areas. As observed, the lake's western and eastern shores serve as a wintering place for waterfowl. It was estimated that the number of waterfowl and near water-living birds is around 67,000 from 29 different species. The mammals in the lake were known to be consisting of six orders and 34 species (including insectivores, chiropters, rodents, carnivore, lagomorphs and artiodactyls). Most of the rural population along the project road depends on subsistence agriculture and livestock. As a rural and countryside setting, agriculture is expected to be the main industry with the main crops as cereal crops and potatoes. The considered sensitive receptors in close vicinity to the project road are Balykchy (km 00+000), start of the road section and with considerable number of people around; and Tash-Saray (km 11 + 000) Residential areas near the road. The minimum distance from the edge of car lane to the residential building is 20m. The project road, and likewise this road section partly passes the Issyk-Kul Biosphere Reserve with four (4) Zones – (i) Core Zone; (ii) Buffer Zone; (iii) Transitional Zone; and Rehabilitation Zone. As per Regulation Biosphere Territory "Issyk-Kul", start of the road reconstruction of the Balykchy (00+000km) and highways are part of the Rehabilitation Zone.

### **Environmental Impacts and Mitigation Measures**

14. The anticipated environmental impacts of the proposed road project are likely to be resulting directly from construction activities. Environmental and social impacts associated with the road

construction consist of (i) impairment of access; (ii) dust generation; (iii) noise level aggravation; (iv) heightened emissions levels; (v) water contamination & sedimentation; (v) impacts on local flora and fauna; (vi) disruption to local economy; (vii) defacement of local topography; (viii) solid and liquid waste generation; (ix) road safety issues; and (x) impacts on archaeological sites.

15. The construction entails a number of activities which are expected to introduce impacts and disturbances to the general environment, especially during the construction period. Most of these impacts are confined within the right-of-way, construction sites, and facility sites; while some activities can affect the outlying areas or even a wider area, especially if not properly mitigated.
16. Avoidance of impacts can be executed by proper planning/preparation during the Pre-engineering and design phase. The mitigation measures will consist of the following: (i) use of green measures for erosion; (ii) asymmetric widening to minimize felling of trees; (iii) avoidance of encroachment to archaeological and historical sites with strict instructions to workers; (iv) provision of road safety measures and traffic plan to avoid accidents and maintain access to people; (v) gaseous emissions will be minimized and controlled by proper and regular maintenance of equipment; (vi) dust is controlled by regular water spraying on exposed areas; (vii) noise is minimized at the vicinity of sensitive receptors by proper scheduling of works and provision of noise mufflers to trucks and equipment; (viii) surface water contamination is mitigated by avoiding petroleum spills and soil droppings in water and situating contaminating substances away from waterways and construction of settling ponds for clarifying water prior to discharge; (ix) material sources should be reinstated after usage; (x) ensure usage and installation of safety measures at worksites and along the road; (xi) strictly avoid possible habitat areas of biological organism and prohibit workers from harming indigenous local species; (xii) mitigation measures from blasting works and safe conduct of blasting works.

#### **Analysis of alternatives**

17. In this IEE were considered two alternatives:
  - (i) Zero option - inaction/ do nothing
  - (ii) The road reconstruction project
18. The "Zero option" alternative scenario will mean that the road stays "as is", in which no rehabilitation works. Considering the mentioned reasons and along with those presented in the "Country and Regional Strategy" and "Locality Specific Rationale", the benefits of rehabilitating and reconstructing the road generally outweigh the expectations of the "Zero option" alternative.
19. The second alternative is considering road reconstruction in the section Balykchy (Km 0) to kilometer-post 43 (Km 43) through existing road.

#### **Consultation, Participation and Information Disclosure**

20. In accordance with ADB's Public Communications Policy (2011) and SPS (2009), Public Consultation meeting for this section on the environmental aspects was undertaken on 17 March 2016 in Balykchy. During the public consultation organized by IPIG, with the assistance of PPTA consultants (Kocks Consult, GmbH), prepared PowerPoint presentation regarding the technical features of the project and explained the potential environmental and social impacts with corresponding mitigation measures. At these instances, the participants were able to express what they thought about the project and were given a chance to ask clarificatory questions during the open forum. Forms were provided to the people for them to write in their own comments which incorporated in the IEE and serve as recommendations in the design phase.
21. In March 2017, a meeting was held with the General Directorate of the Biosphere Territory of Issyk-Kul, where information was presented on the project and the planned work. Also, the draft EIA was submitted to the General Directorate for consideration and proposal submission. At the meeting, it was agreed that the employees of the biosphere territory will be involved in joint

work in the implementation of the project (joint monitoring, coordination of quarry sites, dumps, etc.). Appendix L.

22. Details of the Public Consultation are provided in Section G. Consultation, Participation and Information Disclosure of this document. The IEE shall also be disclosed to a wider audience via the ADB website. During the project implementation, periodic environmental monitoring reports shall be submitted by IPIG on behalf of MoTR and correspondingly also be uploaded in the ADB website and in KGZ on MoTR website.

### **Grievance Redress Mechanism**

23. The Grievance Redress Mechanism (GRM) is a process through which the affected people need a trusted way to voice and resolve concerns about the project and the project also finds an effective way to address affected people's concerns. The GRM will cover issues related to social, environmental and other safeguard issues under ADB safeguard covenants and Kyrgyz Law.
24. With two stage appeals – the Local (village) Level and Central Level, along with greater participation of the local people, resolution of complaints will be better ensured. ADB itself has additional mechanism in which a complainant can be appealed through the ADB Accountability Mechanism which is always accessible to the APs.

### **Environmental Management Plan**

25. The Environmental Management Plan (EMP) for the project road, consisting of impact mitigation and monitoring plan, has been prepared as part of this IEE. A program of monitoring, the Environmental Monitoring Plan (EMoP), is also developed herein to ensure that all concerned agencies take the specified action to provide the required mitigation, to assess the level of project impacts on environmental quality and to determine whether any additional measures may be necessary. This EMP will be part of the contract documents consisting of specified measures covering most of the possible issues that can occur will enable the avoidance, reduction, and mitigation of adverse impacts in the project cycle. The Contractor shall adopt the mitigation measures, particularly those for the construction into his Site Specific Environmental Management Plan (SSEMP) consistent with their own work program. Supplementary Plans will also be drawn up by the Contractor for specific situations to ensure a focused action on any problem that might arise.
26. Operational framework of the EMP involves the national agencies (IPIG-MoTR, SETI, SAEPP, IBRM), ADB Safeguard Specialists, Construction Supervision Consultant (CSC), Contractor, with the local governments and recognizing roles of NGO's and people's organization at the project site. The cost for implementing EMP will be financed, specifically the costs of mitigation measures will be included in the construction contracts, and the cost for environmental monitoring will be included in the consulting service of the CSC.
27. The cost for implementing EMP will be financed by the loan, specifically the costs of mitigation measures will be included in the construction contracts, and the cost for environmental monitoring will be included in the consulting service of the CSC. Mitigation measures and a monitoring plan have been developed and incorporated into the EMP. Under the guidance of CSC, the contractor will have to submit general site-specific Environmental Management Plans on the basis EMP including following 12 annexes prior to commencing operations:
  - (i) Method Statement for Construction
  - (ii) Dust Suppression Plan
  - (iii) Blasting Works Management Plan
  - (iv) Construction Noise Suppression Plan
  - (v) Surface Water Contamination Prevention Plan
  - (vi) Borrow Pits Management Plan



- (vii) Soil Management Plant
- (viii) Solid and Liquid Waste Management Plan
- (ix) Cultural & historical sites Management Plan
- (x) Safety Management Plan
- (xi) Camp and Workshop Management Plan
- (xii) Material Processing Plants/Equipment and Storage Facilities Plan

The SSEMP shall be endorsed by the construction supervision consultant before submission to IPIG for approval.

28. IPIG will promptly inform ADB of the occurrence of any risks or impacts, with detailed description of the event and proposed corrective action plan if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE. IPIG will report any actual or potential breach of compliance with the measures and requirements set forth in the EMP promptly after becoming aware of the breach.
29. Monitoring and reporting. During construction, monitoring shall be done by CSC. Based on these monitoring results, CSC will submit quarterly project progress report reflecting environmental safeguard compliance. CSC will assist IPIG in compiling and submitting semiannual monitoring reports (EMR) during project construction within one month after each reporting period. EMRs will be disclosed at ADB website and submitted to local authorities.

### **Conclusions and Recommendations**

30. The IEE/EMP-EMoP, as part of the contract documents, shall be adhered to by the Contractor. Accordingly, the Contractor shall require all his Sub-Contractors to follow also the EMP and such stipulations should also be shown in Sub-contracting agreements, which will be verified by the Engineer (or the CS Consultants).
31. Upon assessment of the impacts, the project is maintained at Environmental Category B; since the predicted impacts are "site-specific, with few irreversible, and in most cases mitigation measures can be readily designed and to be incorporated in the detailed designs.
32. Mitigation measures have been developed to be utilized for finalization in the detailed design phase, for implementation in the construction phase, and subsequently for the operations phase, to reduce all negative impacts to acceptable levels. As per assessment in this IEE, the proposed Road Project is unlikely to significant environmental impacts. To ensure environmental and social safeguards, the IEE recommends that:
  - the strict monitoring is done;
  - measures be implemented;
  - avoid socioeconomic impact – hire local people;
  - contractor should have SSEMP approved before commencing construction works;
  - baseline measurements and periodic monitoring be done;
  - contractor to designate environmental staff;
  - CSC to provide sufficient training on EMP implementation and compliance monitoring for the CSC engineers and to the Contractor's staff;
  - CSC to assist IPIG in monitoring and reporting on EMP implementation
  - IPIG-MoTR shall oversee environmental compliance and ensure that reporting requirements are followed.

## B. Policy, Legal, and Administrative Framework

### 1. Introduction

33. The Government of the Kyrgyz Republic (the government) has requested for a project preparatory technical assistance (PPTA) from the Asian Development Bank (ADB) to identify, formulate, and prepare an ensuing loan and/or grant for the CAREC Corridors 1 and 3 Connector Road. The main output of the PPTA is a feasibility study suitable for donors financing. The study will cover five (5) sections:

- **Balykchy (Km 0) to kilometer - post 43 (Km 43), approximately 43 kilometers (km),<sup>1</sup>**
- Kochkor (Km 64) to Epkin (Km 89), approximately 24 km,<sup>2A</sup>
- Epkin (Km 89) to Bashkugandy [Formerly Dyikan] (km 159), approximately 70 km;<sup>2B</sup>
- Bashkugandy [former Dyikan] Dyikan (km 159) to Kyzyl-Zhyldyz (km 183), approximately 24km, where a Bypass Road is being envisioned to avoid the village of Chaek and part of Kyzyl-Zhyldyz; 3A and
- Aral (Km 195) to Too-Ashuu pass (Km 286), approximately 91 km. <sup>3B</sup>

The Section “Balykchy (Km 0) to kilometer - post 43 (Km 43)” will be financed by ADB.

34. The project scope also includes soft components to tackle sector-wide issues. Agreement needs to be reached with the government on the exact details, including:
- (i) improve efficiency of road asset management in the Kyrgyz Republic,
  - (ii) support the government with institutional reforms in transport sector,
  - (iii) introduce performance based maintenance contracts, and
  - (iv) improve road safety in the Kyrgyz Republic.

The Investment Project Implementation Group (IPIG) within the Ministry Transport and Road (MoTR) that shall be the Executing Agency (EA) for this project during the construction stage. As initial part of the possible funding assistance, the ADB has engaged Kocks Consult GmbH, Germany, to prepare a Feasibility Study and Preliminary Design for the entire project. The consultancy scope also includes an Initial Environmental Examination (IEE); and a social and poverty analysis and impact assessments, in accordance with ADB's Safeguard Policy Statement (SPS) 2009. Then, Japan Overseas Consultants was hired to upgrade this previous IEE to be finalized.

35. With reference to the Contract Agreement for Consultancy Services for the engagement, one of the main tasks of the Consultant is to update/upgrade the previous IEE report in Feasibility Stage to the IEE Report in the Detailed Design Stage Report for the project in accordance with the requirements of environmental legislations of the Government of Kyrgyzstan in addition to the ADB's Safeguard Policy Statement (SPS) 2009. Such environmental safeguard requirements specify that the borrowers/clients are to undertake an environmental assessment process which entails assessing impacts, planning, managing impact mitigations, preparing environmental assessment reports, disclosing information, undertaking consultation establishing a grievance mechanism, monitoring activities and reporting results. The IEE document shall also include particular environmental safeguard requirements pertaining to biodiversity conservation and sustainable management of natural resources, pollution prevention and abatement, occupational and community health and safety, and conservation of physical cultural resources.
36. This IEE document includes an Environmental Management Plan (EMP) that is the updated version of EMPs compared to as had been presented previously in F/S Stage, based on the updated identification of potential impacts, their characteristics, magnitude, distribution, and duration, sensitive receptors and affected groups in this D/D Stage. The EMP shall address the potential impacts and risks identified by the environmental assessment with the corresponding mitigation measures designed to minimize, reduce and mitigate (or compensate the affected parties) and to be implemented for the entire project cycle.

## **2. Extent of IEE Study**

37. This Initial Environmental Examination (IEE) Report is for the Section Balykchy (Km 0) to kilometer - post 43 (Km 43), which has a distance of around 43 km. This road section shall be rehabilitated into Category II road. Accordingly, with its setting and mode of rehabilitation, the project undertaking is classified under the ADB Safeguard Policy Statement 2009 as environment Category B, requiring an Initial Environmental Examination. The purpose of this stage is to review and upgrade the previous IEE Report with more updated and quantitative environmental information additionally obtained/revealed, based on updated construction information such as detailed configuration of infrastructures on/along the road (culverts and power lines), more detail of earth work proposed, potential borrow pits, additional field monitoring and prediction of behavior of noise/pollutions in air and groundwater by sophisticated numerical method. Other environmental issues were also reviewed and confirmed such as fauna and flora, climate change, health, safety and social issues. Based on all the impacts additionally identified/reviewed, considering with the construction scope, it is expected that few impacts, if any, are irreversible, and in most cases mitigation measures can be designed to avoid or minimize them, as is same conclusion of previous IEE report.
38. The first Public Consultations meeting on the environmental aspects for Balykchy (Km 0) to kilometer - post 43 (Km 43), in accordance with Kyrgyz legislation on public access to the information and ADB's Public Communications Policy (2011) and SPS (2009), was undertaken on 17 March 2016 in Balykchy. This was organized by the IPIG-Motor through official communication to the local leaders inviting stakeholders in the surrounding villages.

## **3. Environmental Protection Legislation of Kyrgyz Republic**

39. Environmental impact of the Balykchy (Km 0) to kilometer - post 43 (Km 43) Road Rehabilitation Project is regulated by several environmental legislative acts of the Kyrgyz Republic as shown in Table 1.

**Table 1: Relevant Laws and Regulations on the Environmental Impacts of Road Projects**

N	Legislation	Number & Year of adoption	Purpose / content
<b>Main laws on environmental protection</b>			
1	The Constitution of the Kyrgyz Republic	2010	Land, its mineral resources, airspace, waters, forests, flora and fauna and other natural resources are used, but at the same time are under protection. Everyone is obliged to take care of the environment, flora and fauna of the country.
2	The Environmental Safety Concept of KR	No.506 dtd. 23.11.2007	It establishes the basic principles of environmental policy and determines global, national and local environmental issues; priorities in the field of environmental protection at the national level as well as tools to ensure environmental safety.
3	National Sustainable Development Strategy of the Kyrgyz Republic for 2013-2017	No.11 dtd. 21.01.2013	Provides a conceptual sustainable development framework aimed to satisfy the needs of current generations and not to endanger at the same time the needs of future generations.
4	Law of KR "On Environmental Protection"	No.53 dtd. 1999 in the wording dtd. 27.04.2009	Establishes the basic principles of environmental protection and provides legal authority to establish environmental quality, designate special protected areas, promulgate rules and procedures for the use of natural resources, establish environmental monitoring and control system and reinforce procedures for overcoming emergency situations. Among the standards and norms of environmental quality authorized under this law and related to the project there are: Standards of Maximum Safe Concentration of Hazardous Substances in Air, Water; Standards of Natural Resources Use; Standards of Maximum Safe Noise, Vibration Levels and Other Hazardous Physical Impacts. This law establishes the requirements for environmental examination (environmental assessment) intended by economic or other activities to prevent potential adverse environmental impacts. In addition, it prohibits financing or implementation of projects related to the use of natural resources without obtaining approval from the State Environmental Expertise.
5	Law of KR "On Environmental Impact Assessment"	No.54 dtd. 1999, in the wording dtd. 04.05. 2015	The main law related to environmental assessment. Its task is to prevent negative impacts on human health and environment occurring as a result of economic or other activities, and to ensure compliance of these activities with environmental requirements of the country.
6	Law of KR "General technical rules and regulations for environmental safety in the Kyrgyz Republic"	No.151 dtd. 2009	Is meant to protect the environment. It determines the main provisions for technical regulation of environmental safety and establishes general requirements for ensuring environmental safety during design and operations of businesses and other facilities of all legal and physical entities.
7	Regulation on procedure for conducting environmental impact assessment in the Kyrgyz Republic	No. 60 dtd. 13.02.2015	Establishes the procedure for assessing the environmental impact of the proposed activity (hereinafter EIA). The purpose of EIA is to prevent and/or mitigate the environmental impacts of the proposed activity and other related social, economic and other consequences.
8	Regulation on Water Zones and Strips of Water Bodies Protection in the Kyrgyz Republic	No.271 dtd. 7.07. 1995	Defines the procedure for establishing water zones and strips of water bodies protection in the Kyrgyz Republic, establishes a regime of economic activity and land use located in the water protection zones and strips. This law also defines responsibility for keeping them in proper shape.
9	Rules for the protection of surface waters in KR	on March 14, 2016 № 128	These Rules govern the protection of surface waters from pollution and depletion, in the implementation of the water users of different types of business activities that have or may have an adverse impact on the status of surface waters, irrespective of their legal form, as well as regulate the procedure for implementation of measures for the protection of surface water.
10	Law of KR "On Protection of Atmospheric Air"	No.51 dtd. 1999, in the wording dtd. 09.08.2005	Governs the relations on use and protection of atmospheric air.
11	Law of KR "On Production and Consumption Waste"	No.89 dtd. 2001	Defines the national policy in production and consumption waste management. It is aimed at preventing negative impacts from production and consumption waste on the environment and human health while handling it and their maximum involvement in the economy as an additional source of raw materials.
12	Law of KR "On Protection and Use of Flora"	No.53 dtd. 2001	Establishes the legal framework for ensuring effective protection, rational use and reproduction of flora resources.
13	Law of KR "On Wildlife"	No.59 dtd. 1999, in the wording dtd. 24.06.2003	Establishes the legal relations in the context of protection, use and reproduction of wildlife.
14	Law of KR "On local self-government and local state administration"	No.101 dtd. 2011	Establishes the principles for setting-up local authorities at the level of administrative and territorial units of the Kyrgyz Republic.
15	Law of the KR "On industrial explosives";	No. 110 dtd 21. 05. 2015	Defines the legal framework for the regulation of explosives trafficking on the territory of the Kyrgyz Republic, and ensuring the safety of personnel working with explosive materials, the population, as well as the protection of property and the environment;
16	Regulation on the procedure of consideration and issuance of industrial safety authorization documents.	No.301 dtd. 30.05.2013	Establishes the procedure for consideration and issuance of legal entities and individuals, allowing documents authorized executive body, endowed with special licensing features in the field of industrial safety, including conduct of explosive works (procurement, storage of explosive; license for explosive work, etc.)
<b>Legislation on Land Acquisition</b>			

N	Legislation	Number & Year of adoption	Purpose / content
17	The Constitution of the Kyrgyz Republic	2010	Clause 12 recognizes a diversity of forms of ownership and guarantees equal legal protection of private, state, municipal and other forms of property (Clause 12, paragraph 1). Land can be of private, municipal and other forms of ownership except for pastures, which cannot be privately owned (Clause 12, paragraph 5). Property is inalienable. No one can be arbitrarily deprived of his property. Seizure of property by the state against the will of the owner is allowed only by court decision (Clause 12, paragraph 2). Seizure of property for public purposes specified in the law is possible by the court decision with fair and advanced compensation of property cost and other damages caused as a result of such alienation. (Clause 12, paragraph 2).
18	Civil Code	No.16 dtd. 8.05.1996 in the wording dtd. 30.05.2013	Determines that the person whose right is violated can demand full compensation for damages, unless the law or agreement consistent with the law says otherwise (Clause 14, paragraph 1). The Civil Code specifies the following losses subject to compensation: expenses incurred or to be incurred by the person whose right is violated in connection with restoration of violated rights (Clause 14, paragraph 2); loss or damage to property (Clause 14, paragraph 2); lost income that would be received by the person under normal civil turnover conditions if his right was not violated (lost profits) (Clause 14, paragraph 2); Compensation for loss of profits along with the other costs, at least in the amount of such income, to the person losing land, assets or livelihood.
19	Land Code	No.45 dtd. 2.06.1999 in the wording dtd. 26.05.2009	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.
20	Law of KR «On transfer (transformation) of land»	No. 145 dtd. 15.07.2013	This law is developed in accordance with the Land Code of the Kyrgyz Republic and other normative legal acts of the Kyrgyz Republic. It defines the legal basis, conditions and procedure for transfer (transformation) of land from one category to another or from one type of land to another.
21	Law «On Highways»	No.72 dtd. 2.06.1998	According to Clause 4 the public roads are owned by the state and not subject to sale and cannot be passed into private ownership. This law (Clause 27) also provides that without prior approval of the State Automobile Inspectorate and the Ministry of Transport and Road of the Kyrgyz Republic the following is prohibited among others: trade on the roadside; placement of kiosks, pavilions and similar structures; and, unauthorized use of road lands (Clause 23)
22	Regulation on valuation of assets		Valuation of assets is made based on the Provisional Rules of activities of valuers and valuation organizations (Government Resolution #537 dtd. August 21, 2003), property valuation standards (Government Resolution #217 dtd. April 3, 2006) and other national legislative provisions.
<b>Law on Protection and Use of Historical and Cultural Heritage</b>			
23	The Law "On protection and use of historical and cultural heritage"	No.91 dtd. 26.07.1999	Establishes legal norms for protection and use of tangible historical and cultural heritage on the territory of the Kyrgyz Republic, which is of unique value for people. The law is mandatory for all legal entities and individuals. It defines their rights and obligations in the context of protection and use of tangible historical and cultural heritage. Historical and cultural heritage are the historical and cultural monuments associated with historical events in the life of the people, development of society and the state, material and spiritual creative works representing historical, scientific, artistic or other value.
<b>Law on Access to Information</b>			
24	The Law "On access to information held by public bodies and local self-government of the Kyrgyz Republic"	No.213 dtd. 28.12.2006	This law regulates the rights and obligations of public authorities to provide information to the local population, in order to achieve transparency of work of public awareness
<b>International Conventions and Agreements</b>			
25	UN Framework Convention on Climate	2000	Combating global climate change and its consequences.
26	Aarhus Convention on access to information, public participation in decision-making and access to justice on	2001	To support the protection of human rights to a healthy environment and wellbeing, access to information, public participation in decision-making and access to justice on issues related to the environment.

40. Ratification of international legal acts involves implementation of international requirements into the national legislation and harmonization of the Kyrgyz legislation with the international legislation. However, this process is moving very slowly in Kyrgyzstan given that conventions are really frameworks that need to be translated into national laws, a process that is time consuming and complicated.

#### 4. Required ADB Environmental Approval

41. ADB requires the consideration of environmental issues in all aspects of its operations. Superseding the previous environment and social safeguard policies, ADB's Safeguard Policy Statement, 2009 (SPS, 2009) sets out the policy objectives, scope and triggers, and principles

for three key safeguard areas: (i) environmental safeguards, (ii) involuntary resettlement safeguards, and (iii) Indigenous Peoples safeguards.

42. ADB adopts a set of specific safeguard requirements that borrowers/clients are required to meet in addressing environmental and social impacts and risks. Borrowers/clients comply with these requirements during project preparation and implementation. The environmental safeguard requirements are indicated in Appendix 1 of SPS 2009 (Safeguard Requirements 1: Environment). This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, and loans involving financial intermediaries, and private sector loans.
43. In the ADB's Screening and Categorization, the nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project, the sensitivity, scale, nature and magnitude of its potential impacts, and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impact are assigned to one of the following four categories:<sup>1</sup>
- **Category A:** Projects with potential for significant adverse environmental impacts. An environmental impact assessment and a summary EIA (SEIA) are required to address significant impacts.
  - **Category B:** Projects judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for category A projects. An initial environmental examination and a summary IEE are required to determine whether or not significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
  - **Category C:** Projects unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are still reviewed.
  - **Category FI:** Projects are classified as category FI if they involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all subprojects will result in insignificant impacts.
44. Public Disclosure: ADB will post the following safeguard documents on its website so affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation:
- For environmental Category A projects, draft EIA report at least 120 days before Board consideration;
  - Final or updated EIA and/or IEE upon receipt; and
  - Environmental Monitoring Reports submitted by Implementing/Executing Agencies during project implementation upon receipt
45. The Section Balykchy (Km 0) to kilometer - post 43 (Km 43) was classified based on ADB's Safeguard Policy Statement (2009), and ADB Methodological Guidelines on Environmental Assessment (2003) as a category "B", and IEE is required and regarded as the final environmental assessment report.
46. ADB also requires public consultation in the environmental assessment process. For Category-B projects, the borrower must consult with groups affected by the proposed program and with local nongovernmental organizations (NGOs) if possible. The consultation for this needs to be carried out as early as possible in the program cycle so that views of affected groups are taken into account in the design of the program and within the mitigation measures proposed. In this Grievance Redress Mechanism (GRM) is considered in Section H of this report.

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<sup>1</sup>ADB. 2003. *Environmental Assessment Guidelines*, Manila.

## **5. Permitting Processes in Kyrgyz Republic**

47. The assessment of the possible effects of economic and other activities on the environment and human health, as well as the development of a list of measures to prevent adverse effects (destruction, degradation, damage and depletion of natural ecological systems and natural resources), and improve the environment are carried out in the framework of environmental impact assessment provided the environmental legislation of the Kyrgyz Republic.
48. 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 dtd. 1999, (with amendments as of 04 May 2015),
  - Law "On Environmental Protection" No.53 dtd. 1999, and
  - Law "General technical regulation on environmental safety."No.151 dtd. 2009.
49. The Environmental Management Plan (EMP) is developed on the basis of the EIA, design solutions and refined, is specified on each next stage of the project. EMP reflects all the possible negative impacts that have been identified EIA and includes mitigation measures these effects.
50. Environmental assessment in the Kyrgyz Republic is founded on two subsystems: (i) OVOS (the Russian acronym for "Environmental Impacts Assessment"), and (ii) Ecological Expertise (State Environmental Review, SER). The ecological assessment based on a "list", project screening is done to determine whether a project is the subject to environmental assessment or not. For cases that this is required, an OVOS is conducted by an OVOS consultant hired by a Project Proponent. The environmental assessment proceeds with EIA documents which will be subjected for further reviews.
51. The resulting EIA/IEE is then presented for public consultations, after which revisions are done according to the public's feedback. Subsequently, the OVOS report, Statement of Environmental Consequences, and other supporting documentations are submitted for the SER. After which the project may be approved, rejected or send for reexamination. The SER duration depends on the complexity of the project, but should not exceed 3 months after submission of all the IEE documents for the SER by the Project Proponent.
52. Continuation of the SER depends on the project, but cannot be more that 3 month after submission by the Initiator of the project with all EIA/IEE documents to SER. Public Environmental Review (PER) is organized and conducted by the initiation of the local people, local administrations and Civil societies, registered in the Kyrgyz Republic. The outputs of public environmental review is directed to the agency, which is implementing the state environmental expertise and to the agency, which is responsible for the decisions of implementing of the expertise objects.
53. Conclusion of the public environmental expertise is recommendatory. It can be published in Mass Media, submitted to the local state administrations, initiators of the project, designers and other interested parties.

## **6. Environmental Standards**

54. The following pollutants are to be monitored before, during and after construction. The environmental standards applied to the Project are also indicated together. International standards were also presented herewith for comparison with Kyrgyz standards; subsequently the more stringent standards shall be used as monitoring requirements.

### **Air quality**

55. Maximum permissible concentrations of harmful substances in ambient air according to Kyrgyz and international standards below in the Table 2.

**Table 2: Maximum Permissible Concentrations of Harmful Substances in the air**

Pollutants	Maximum permissible concentration (mg/m <sup>3</sup> )		Concentration averaging period	
	According to national legislation	According to IFC*	According to national legislation	According to IFC*
Dust	0.5	-	daily average	
PM <sub>10</sub> (Reference only and not monitored)	-	0.01	-	
PM <sub>2.5</sub> (Reference only and not monitored)	-	0.025	-	24 hours
PM <sub>2.5</sub> (Reference only and not monitored)	-	0.02	-	
PM <sub>2.5</sub> (Reference only and not monitored)	-	0.05	-	24 hours
Dioxide (SO <sub>2</sub> )			average	s
Dioxide (NO <sub>2</sub> )			average	
Carbon monoxide (CO)			average	in daily 8 hour mean

\*World Health Organization (WHO). WHO Ambient Air Quality Guidelines.

## Noise

56. International and Kyrgyz norms are presented in Table 3 below.

**Table 3: International (IFC) Noise Standards (dB(A))**

Noise Level Guidelines*		
Receptor	Average L <sub>Aeq</sub> dB (A)	
	07:00 - 22:00	22:00 - 07:00
Residential; institutional; educational**		
Industrial; commercial		

\*Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999. \*\*For acceptable indoor noise levels for residential, institutional, and educational settings refer to WHO (1999).

International and Kyrgyz norms are presented in Table 4 below.

**Table 4: Kyrgyz Republic Noise Standards (dB(A))**

Description of activity/category	L <sub>Aeq</sub>		L <sub>max</sub>	
				Night
Areas directly adjacent to hospitals and sanatorium				
Immediately adjacent to dwellings, polyclinics, dispensaries, rest homes, holiday hotels, libraries, schools, etc.				
Immediately adjacent to hospitals and dormitories				
Recreational areas in hospitals and sanatoriums	35		50	
Areas at the territories of micro-districts and building estates, rest houses, sanatoriums, schools, homes of aged, etc.	45		60	

SN (Sanitary Norms) 2.2.4/2.1.8.562-96 "Noise at workplaces, in dwelling rooms, in public buildings and at the area of residential development".

## Surface water

Monitoring qualities of surface water are presented in Table 5 below.

**Table 5: Surface Water Quality Standards (for water bodies for household and cultural use of water)**

Pollutants	Maximum permissible concentration (mg/m <sup>3</sup> )	
	According to national legislation	According to EC legislation
Turbidity	Not less than 20/10 cm	Not less than 1,0 meters/depth
Oil products	0,3 mg/L	Not more than 0,1 mg/L in the form of a film
pH	-	-
Total Suspended Solid (TSS)	Increasing 0.25 / 0.75	

GN 2.1.5.1315-03 with changes GN 2.1.5.2280-07 and SanPiN 2.1.5.980-00, Directive 2006/44 / EC of the European Parliament and of the Council of 6.09 in '06 on the quality of fresh waters needing protection or improvement of quality in order to maintain fish life.



## C. Description of the Project

### 1. Need for the Project

57. Since Kyrgyzstan is a mountainous, landlocked country, regional commerce depends heavily on road transport. As mentioned in Country Partnership Strategy with ADB, the road infrastructure has been routinely affected by climate-induced extreme events, including, landslides and mudslides. It is for this reason that further investment will be needed in the rehabilitation and maintenance of the road infrastructure.
58. The proposed project will help link the southern regions of Osh, Batken, and Jalal-Abad with the northern regions of Naryn, Issyk-Kul, Chu, and Talas, and then further connect to the regional corridors. The project will: (i) reduce the cost of passenger and cargo transportation between southern and northern regions by providing direct access, (ii) provide a more direct transit route between Kazakhstan and Tajikistan, and (iii) help stimulate economic activities such as trade.

### 2. Overview

59. This Section's starting point designated as Km 0, begins at a roundabout located at the entrance to Balykchy town. There are 5 roads that converge at this point as shown in Figure 1, and one of which is the Section of the project road, which radiates in the southeast direction. At the starting point, there are 2 stores found at the left-hand side, while 3 stores are found on the right-hand side. The first 8 kilometers is a straight path until the road reaches bank of Chu River, at which point it then turns south and meanders with the river for the next 6.5 km. Then it turns southwest in between mountains for 10 km and make an elbow turn to the east to run along Orto Tokoy Reservoir for around 17 km. When the road reaches the east edge of Orto Tokoy Reservoir, it turns southward along the bank of Chu River that drains into the reservoir until it meets with the newly constructed Bishkek-Naryn-Torugart Highway.



**Figure 1. Starting Point of Project Area**

60. The first 8 km straight path is somewhat flat and with seemingly enough space for a Category II road. The road crosses a railway after the first kilometer. After that, the road goes uninterrupted until it reaches the bank of Chu River. A number of industrial buildings and complexes can be seen from the road especially the area near the starting point to around 3.5 km. Beyond this point both sides of the road are barren areas with grass steppe, spiny weeds and scrub grasses. Aside from the row of trees at around Km 2 in front of the industrial complex, there are very few trees that dot the only one village, Tash-Saray, is bordered by the road at Km 11, with few houses found near the road. From around 8.4 km to 11.5 km, cultivated lands were found on the left-hand side while the Chu River bank is at the right-hand side.

61. The road goes along:

- Chu River at the km 8 + 000 there is an area 200 m long beside the road,
- Chu River at the km 10 + 000 there is an area 1,5 km long beside the road,
- Chu River at the km 11 + 600 there is an area 2,0 km long at a distance of less than 50 m,
- Orto Tokoy Reservoir at the 33 - 40 km) at a distance of 200 m and
- Orto Tokoy Reservoir at the 40 - 43 km at a distance of 50 m.

Along the river bank shrub vegetation grows, in some places buckthorn, cattail, trees are presented from elm and willow as shown in Figure 2.



**Figure 2. Project Areas near Chu River**

62. As the road passes between two mountains at Km 14, the landscape turns into dry and arid with scrub grasses as the main vegetation. The valley is also somewhat flat with occasional rocky features. No settlements are found within this stretch but serve as graze land for stock animals as shown in Figure 3.



**Figure 3. Project site (after Km 14)**

63. From the eastward elbow turn up to the edge of Orto Tokoy reservoir the semi-arid landscape prevails with scrub grasses as the primary vegetation. Thence, the road runs around 9 km alongside Orto Tokoy Reservoir and enters Kochkor District, part of Naryn Oblast; which is around 250-300 meters from the water edge. In the final stretch, the road runs alongside the Chu River that drains into Orto Tokoy Reservoir at the foothills of the mountain on the left and the river bank on the right as shown in Figure 4.



**Figure 4. Project Site – Orto-Tokoy Reservoir**

64. Bokonbayevo is the capital of Tong District, which serves as institutional as well as local commercial center. Kochkor is the capital of Kochkor District and within Naryn Oblast.
65. The Table 6 shows the Geographical Jurisdictions that the road section traverses or is near to.

**Table 6: Geographical Jurisdictions along the Road Section**

Oblast	Rayon	Town	Village	Section / km
Issyk-Kul		chy	ion in Balykchy)	Km 0 – Km 43
			okoy	
			Saray	
	or		ion with Bishkek-Naryn-Torogart Road)	

Source: The Consultant

66. The map of the project road is shown in Figure 5.



**Figure 5: Location Map of the Road Section**

### 3. Type and Technical Road Category of the Project

67. The Section “Balykchy (Km 0) to kilometer - post 43 (Km 43)” will be upgraded to Technical Road Category II along the existing alignment. The details of the proposed road project are:
- Rehabilitate and pave the project road to Technical Category II from Balykchy (Km 0) to kilometer - post 43 (Km 43) according to Kyrgyz National Standard with Geometrical and



Structural Requirements (pavement works – replacement and/or construction of new pavement structure; road curvature improvements – for improve drivability and safety, curvatures and gradients will be improve, especially at existing narrow curves; carriage way widening – in a number of spots the road width will be widened to allow for safe two-way traffic, and pedestrian access; slope cuts – due to necessary widening and safety; slope stabilization – cuts will be stabilized by structural works);

- Rehabilitation, repair and/or replacement of bridges and culverts (bridge construction/repair – mostly repairs of bridge decks);
- Construction of side drains and other drainage structures (culverts and drainage works – replacement of old culverts and improvement of existing ones with installation of side ditches);
- Provision of retaining walls and river protection measures, where necessary.
- Provision of adequate road signing and marking (installation of road furniture – necessary safety features and furniture shall be installed at strategic locations along the road).
- Provision of safety barriers.
- The envisioned service life of the pavement based traffic load forecast is set at 20 years, with the normal routine and periodic maintenance

68. The road is to be designed according to Kyrgyz geometric design standard, and accordingly, it shall be sufficient to carry the traffic loading efficiently within its projected service life. Effectively, these will be a two-lane road consisting of a carriageway width (sum of the width of lanes) and the width of the shoulders. The design elements for the cross section of the project road are as follows:

- Number of lanes: 2
- Lane width: 3.5-3.75 m
- Carriageway width: 7.00-7.50 m
- Width of shoulder: 3.25-3.75 m (of which 0.50-0.75 m is paved)
- Total road width: 15.00 m

Typical pictures of sections Technical Category Road (Types 1-6) are shown in Figure 6 while those of 'Types 7-11) are indicated in Figure 7.

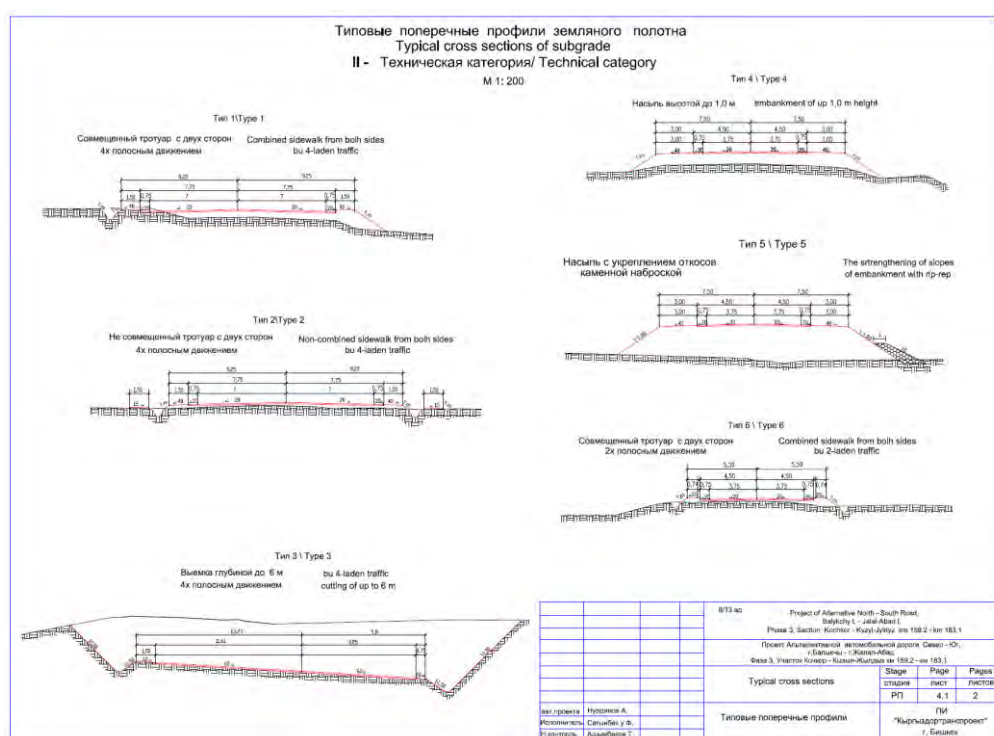
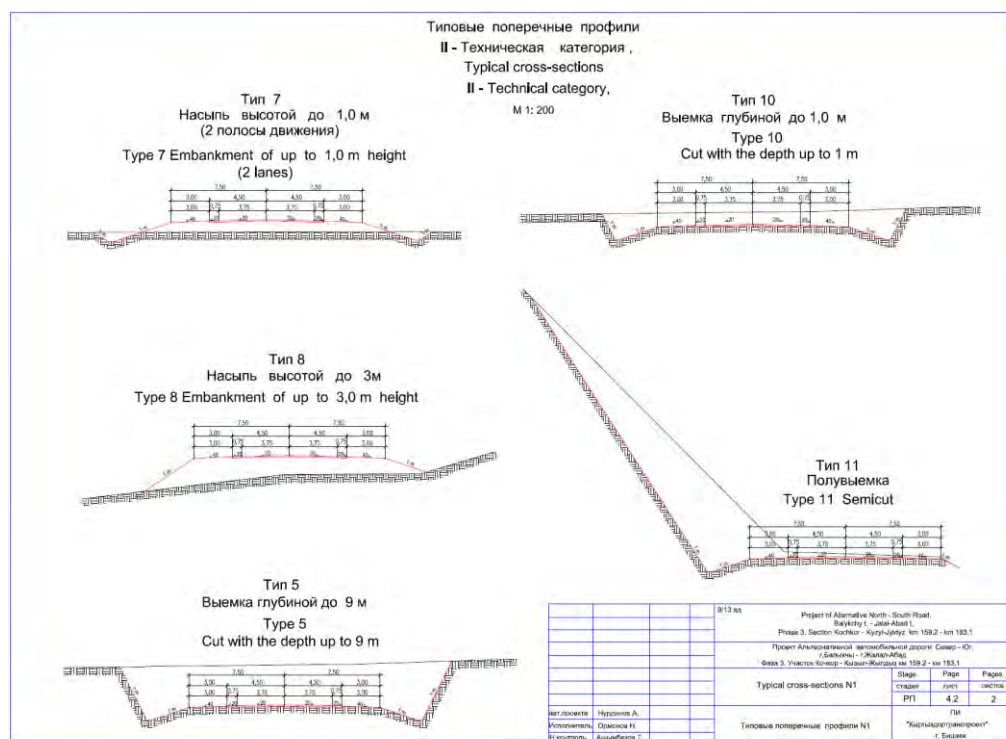


Figure 6: Technical Category II Road (Type 1-6)



**Figure 7: Technical Category II Road (Type 7-11)**

69. Permanent land allocation for the subgrade is not required on the sections between settlements. Temporary land allocation for quarries, allocation construction machines and mechanisms is 20 hectares. During the construction provides arrangement of the construction site which will be identify on the detail design phase, and allocation for construction site have to - 1.0 hectares.

- Restoration and consolidation of alignment (stakeout);
- Coordination of the initiation and terms of construction works (with the traffic police, road administration, ecology administration, etc.);
- Preparation of the construction site;
- Preparation of sites for placing road equipment in the working area;
- Preparation of specialized areas for fuel storage;
- Felling of trees and clearing of areas;
- Demolition of existing engineering structures;
- Dismantling of fences;
- Demolition of buildings.

70. Planned volume of earthworks is shown in Table 7:

**Table 7: Volume of Earthwork**

Description	Unit	Quantity
Excavation of top soil (vegetative layer)		
on to spoil of unsuitable and surplus material, common soil		
on to spoil of unsuitable and surplus material, rocky ground		
on of embankment, common material from cut		
on of Subgrade, selected material		

71. Outline of earthwork is summarized in Annex A2. Embankment is filled with the maximum thickness of 5m but mostly less than 2m. For road trenches, existing slope is cut with maximum height of 12m.

### 3.1. Bridges and Culverts

72. There are three bridges (1 flume and 2 ravines) and 69 culverts which will be replaced along this section of the project road. Outlines of bridges are summarized in Table 8 while those of culverts are presented in Annex A3.

**Table 8: Bridges in the Section**

No.	Bridge Location	Name of crossing watercourse	Span Scheme	Bridge length, m	Design bridge width, m	Proposed Rehabilitation Measure
1	2+055	Flume	x 6.0	.4	1.5+2x0.75	Replacement
2	2+207	Ravine	x 6.0	.2	1.5+2x0.75	Replacement
3	1+750	Ravine	x 4.3	5	1.5+2x0.75	Replacement

73. The Chu River flows alongside the project road. For baseline measurement of water quality the following spots were accepted:
- Chu River (10km) and;
  - On the bridge (flume) (12+055km).

## 4. Temporary Ancillary Facilities





### 4.1. Material Sources and Cut & Fill

74. Considerable volume of materials will be obtained from borrow areas and will be used for construction of road embankments and bridge approaches. Opening of new borrow pits inside the Issyk-Kul Biodiversity Reserve is prohibited and it is recommended to use existing old borrow pits, located in sanitation zone, since several possible borrow areas are quite apparent in the general vicinity. Contractors involved in the recent road reconstruction works also can readily find potential areas for borrow materials which can be used for the bridge approach roads.

Should the Contractor be sourcing the materials from existing and operational quarry site, the contractor should exert influence on the operator that all required permits from local authorities, get approval from SAEPF are obtained and proper operational and management measures be instituted to minimize impacts to the general environment. In addition, when deciding the development of quarries in the Issyk-Kul region, consultations will be held with the General Directorate of the Issyk-Kul Biosphere Territory to obtain expert opinions. If necessary, to consider the issue of opening new borrow pits to which the location requirements (remoteness of at least 500 meters from the lake) will be applied, as well as the practical experience of implementing the BNT-3 project, if it is necessary to open new quarries, the contractor must obtain all necessary permits for the allocation of plots for borrow pits and it will also be necessary to obtain ADB approval. Without the approval of ADB to open a borrow pit, the contractor cannot perform any work, even if there are milestones of permits from the state bodies of the KR (Ministries and Departments) and local authorities. This practice will avoid the possibility of negative impact on the environment. These steps are not required when using existing quarries or precast plants. In the case of private borrow pits all permits (licenses, coordination with local authorities, State Agency on Environment Protection and Forestry, etc.) is the responsibility of the owners of the quarry, which should be specified in the contracts concluded between the contractor and the owner of the quarry.

75. During the field investigations by the material specialist, suitable construction materials were located and inspected. Table 9 presents the list of possible borrow pit areas.

**Table 9: Possible Borrow Areas**

No.	km	Side	Description	Availability	Photo
1	3.5	LHS	Old borrow pit with sand and gravel. However, so many construction wastes were dumped illegally nearby. It is suggested not to use this borrow pit since this illegal dumping may be asked.	Not recommended	
2	5.	RHS	Sand and gravel together with asphalt mixing plan	Yes	
3	11	LHS	Sand and Gravel	Yes	
4	32.6	LHS	Sand and Gravel	Yes	

76. Should the contractor decide to use any area within the Issyk-Kul Biosphere area for as source for road materials, a more detailed survey of the area should be done and appropriate permit should be processed Issyk-Kul Reserve General Directorate.

#### **4.2. Asphalt and Cement Batching Plants**

77. In establishing asphalt plant at the site for the road pavement basically the binder course and the surface course; the Contractor should be guided by a number of items to protect the environment. Emissions will be produced in producing the asphalt mix likewise bitumen spill may occur during handling and mix preparation. For the cement batching plant for concreting works such as bridges, culverts and drainage works, cement dust can contaminate the air. In addition, the preparation, mixing and loading of concrete mix into the transit mixer and subsequent washing of trucks will result into soil and water contamination.
78. These two facilities should be situated at appropriate distances from the residences (not less than 500 m)<sup>2</sup> as well as the river (not less than 150 m)<sup>3</sup> so as not to result to water contamination. Within the project road, since the area is rural, there are ample spaces to set

<sup>2</sup> The asphalt plants need to established on the territory of the industrial zone (0-6 km) or the zone of foothill areas ranging from 15 km and mainly use existing asphalt plants that are already installed on the 6 + 500 km, and on the 50 km (Semizbel village, there is an old borrow pit and asphalt plant).

<sup>3</sup> The water protection zone of the Chu River under the Regulations on the water protection zones and strips of water bodies in the Kyrgyz Republic, approved by Resolution of the Government of the Kyrgyz Republic on July 7, 1995 No 271, is 150 m on either side of the river bank.

up these plants. The Contractor should obtain the necessary permits, negotiate properly with the landowners and reinstate the area after usage at the end of the project. Proper permit should be obtained if the Contractor opts to set them up within the designated Biosphere Zone.

#### 4.3. Construction Camp

79. Selection of the required land plots for organizing the construction camps is the Contractor/s responsibility, as well as negotiation with the owners of the lands and getting required permissions. There are free land plots to be used for the construction camps and Contractor has a choice to select relevant territory for the location. The proper maintenance of all the service and sanitary facilities at the construction camp falls under the direct responsibility of the Contractor under the supervision of the construction supervision engineer for the project. The sanitary facilities or ablution include toilets, urinals, showers, washstands and a laundry area. In addition, equipment and maintenance yard will also have to be sited accordingly. Waste water should not be discharged into the river unless treated in compliance to local effluent standards. Solid waste collection and disposal should be planned properly in accordance with the requirements to the solid wastes. Solid waste disposal to the rivers are restricted.

#### 5. Alternatives

80. In this section, two alternatives are being considered:
- (i) Zero option – the «Inaction»/ do nothing alternative
  - (ii) The road reconstruction

The second Alternative is considering the road reconstruction in the section “Balykchy (Km 0) to kilometer - post 43 (Km 43)”. Reconstruction for the Category II road, on existing road.

#### 6. Traffic Volume

81. Results of the Manual traffic counting road section converted into AADT by each vehicle type (Year 2015) in view of seasonal and daily correlation is shown in the Table 10 below<sup>4</sup>.

**Table 10: Results of Manual Traffic Count (2015)**

Analysis section	Name of the section	Vehicle Type	Car	Light Bus/Van	Medium Bus	Large Bus	Light Truck Pick Up	Medium Truck 2-axle	Heavy Truck 3-axle	Truck trailer	Truck Semi trailer	Total
1A	0 km – 42+939 km	result										
		K Factor (Wednesday/August) = 0.814										

Source: KOCK's Preliminary Report

82. As per estimate in the traffic study, the growth rate is as follows: (i) 2011-2024 = 4.2%; (ii) 2025-2029 = 3.7%; (iii) 2030-2035 = 3.2%; and (iv) 2036-2040 = 2.8%. After adding the diverted traffic and applying the growth rates the future traffic are around 1, 222 cars. Comparing this value with Road Classifications for Kyrgyz Republic, it shows that Category II road will be sufficient to service the future traffic.
83. It should be noted that, although future traffic will be increased, improved quality of road leads to positive environmental factors.

#### 7. Proposed Schedule for Implementation

84. The schedule for the construction activities is at preliminary stage. The detailed design consultant will have to be recruited who will undertake the necessary design finalization along with all the contract documents. This IEE will form a part of the contract with specific provisions to form part of the Technical Specifications. The anticipated start of construction will

<sup>4</sup> This is part of the Economic Report for this PPTA



be in 2018 or later. All construction period will take 2 years and plus 1 year for technical guarantee.

## D. Description of the Environment

### 1. Geomorphology

85. The mountain ranges in the Kyrgyz Republic are part of the highest mountain ranges of the Tien Shan and Pamir-Alai. These mountains form natural geographic borders between Central Asia and China. Strongly dissected topography of much of the country is an important factor of its settlement and development. These are characterized by high rates of erosion landslides and rock falls. The road corridor is entirely contained within the mountain ranges of the Northern and Inner Tien Shan. The route passes through the mountain and plain part of the Issyk-Kul, Naryn regions at an altitude of 700 to 3500 m above sea level, crossing the valleys of the Chu River.
86. The main mountain ranges of the Inner Tien Shan (project zone) is describe as:  
In the north are Sandyk range and Jumgal-Too; northwest Suusamyr – Too range; and Kyzart range along the highway corridor.  
The Ridges / vertices:
- Ukek maximum height of 4356 meters, the average height of 4000 m, length of 30 km, maximum width of 20 km.
  - Kyzart Ridge - maximum height of 4400 meters, the average height of 3800 m, length of 30 km, maximum width of 16 km.
  - Sandyk Ridge - maximum height of 3947 meters, the average height of 3600 m, length of 50 km, maximum width of 12 km.
  - Jumgal Ridge - Too maximum height of 4121 meters, the average height of 3800 m, length of 54 km, maximum width of 15 km.
  - Suusamyr Ridge - Too maximum height of 4048 meters, the average height of 3500 meters, the length of 126 km and a maximum width of 31 km.
  - At the Mid-cavity in the project area:
  - Kochkor - hollow cavity of the bottom altitude 1800-2500 m, length of 80 km within the bottom, within the maximum width of the bottom 20 km.
  - Jumgal - altitude valley bottom basin 1500-2600 m, length of 80 km within the bottom, within the maximum width of the bottom 25 km.
  - Kyzyl-Oi - altitude valley bottom basin 1700-2400 m, the length of 9 km within the bottom, within the maximum width of the bottom 8 km.
87. Issyk-Kul hollow represents a depression of tectonic origin. The northern and southern shores of the lake are a band width of 5-10 km, gradually moving from the bottom to the lakeside terraces foothill hilly plains and on to the high mountain slopes and ridges Kungei Teskey Ala-Too. All human activities are concentrated in this band. The area is composed of Quaternary sediments, and the mountain ranges are mostly Paleozoic sedimentary and metamorphic rocks.
88. The area of road section covers various geomorphological relationships as follows:
- From km 0 to km 0.7 – from the roundabout to the first junction are built-up areas of the outskirts of Balykchy. The area is flat and the solid is generally loose earth with bush and shrub growth.
  - From km 0.7 to km 4.00 – the area resembles like an arid semi-dessert with sparse shrub vegetation. The area is generally flat with very slight change in elevation as the road progresses.
  - From km 4 to km 8 – low steppe hills on the left side while the right side is flat up to Chu River banks.
  - From km 8 to km 12 – the road turns south and run along the Chu River on the right. The left sides of the road are areas Tash-Saray farmlands along the foot of the low hills.
  - From km 12 to km 14 – the road encounters a rocky hill on the left side and is squeezed into a narrow pass with the Chu River on the right-hand side. In some portions the road rehabilitation may require some rocks to be scarified or even blasted.

- From km 14 to km 17 – the road turns to the west and runs between rocky mountains which are mainly made up of fractured and eroded boulders. The valley is arid and has very little vegetation which is mainly bushes.
- From km 17 to km 24 – some tree plantations are being found on the left-hand side, while the elevated right-hand side are mainly bushes. The road rounds a bend along the foothills of the mountain on the right and proceeds westward.
- From km 24 to km 32 – on the right-hand side be the rocky mountain's southern slope while the left-hand side is a sloping semi-desert steppe area – eroded materials coming from the rocky mountains further south – the Terskey Ala-Too. This is a mountain range in the Tian Shan Mountains in Kyrgyzstan. This is composed of granites and granodiorites of Caledonian, and granites, metamorphic schists, quartzites, sandstones, and limestones of Paleozoic.
- From km 32 to km 40 – on the left-hand side, the road runs along buffer area of the southern shores of Orto-Tokoy Reservoir; while on the right-hand side are steppe areas which are agglomerates of loose rocks and soil deposits.
- From km 40 to km 43 – The road turns on a southwest direction and runs along Chu River that feeds into Orto Tokoy Reservoir on the right side. While on the left-hand side is a mountain segment of the rocky east-west mountain ranges. The road joins with the Bishkek-Naryn-Torugart Highway as its end point.

## **2. Soil and geology**

89. Lacustrine deposits represented by gravel and sand are spread on the 0 km - 17 km road section. At the end of the section, on the right bank terrace of the Chu River, lacustrine deposits are over covered by pebble gravel of alluvial origin. Thickness of lacustrine deposits is more than 5.0 m.
90. Rocky soil of deposit and metamorphous origin are developed on sections from 17 - 30 km.
91. Fill-up soil of the roadbed are represented by pebble and crushed stone soil with filler consisting of sand to loamy material with 15-30% content, including field stones of 5 to 30% Depth of fill is within 0.2 to 30.3 m. Roadbed subgrade consists of the following soil: crushed stone, pebble, gravel, clay loam and slate.
92. At 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, tall grass meadow steppes.
93. According to the seismic map regionalization of Kyrgyz Republic territory, the surveyed section relates to 8 point seismic zone (SNiP KR 20-02:2009).

## **3. Climate**

94. 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.
95. Most part of the road section is within Issyk – Kul Oblast (km 0 to km 29) and the rest is part of Naryn Oblast. Due to the confinement of the Terskey Ala-Too ranges, most of the climatic conditions of the project road are that of Issyk-Kul region.
96. By climatic characteristics the surveyed road sections relates to V road climatic zone (SNiP KR 32-01:2004, Appendix B, table B.1)

## **4. Hydrology**

97. There are three main water bodies that are relevant to the road section – Issyk Kul Lake, Chu River and Orto Tokoy Reservoir. No major river crosses the road section in this area; however, in several spots, the road is adjacent to the Chu River. At the start of the section in Balykchy,

the road section is around 2.5-3.0 km to the water edge of Issyk Kul Lake. However, in between are built-up areas consisting of residential, commercial and industrial areas. Issyk-Kul (meaning warm lake in Kyrgyz language), an endorheic lake in the northern Tian Shan mountains in eastern Kyrgyzstan, is the tenth largest lake in the world by volume, and the second largest saline lake after the Caspian Sea. Issyk-Kul Lake became a Ramsar site in 1975 and was considered water body of globally significant biodiversity (Ramsar Site RDB Code 2KG001) and forms part of the Issyk-Kul Biosphere Reserve.

98. Issyk-Kul Lake is 182 kilometers (113 mi) long, up to 60 kilometers (37 mi) wide, and an area of 6,236 square kilometers (2,408 sq. mi). It is at an altitude of 1,607 meters (5,272 ft.), and with depths reaching 668 meters (2,192 ft.). About 118 rivers and streams flow into the lake; the largest are the Djyrgalan and Tyup. It also is fed by springs, including many hot springs, and snow melt. Currently, the lake does not have any visible outlet, but some hydrologists hypothesize that, deep underground, lake water filters into the adjacent Chu River. Mineral deposits such as monohydrocalcite, one of the few known lacustrine deposits, are found at the bottom of the lake. The lake water's salinity is approx. 0.6%— compared to 3.5% salinity of typical seawater.
99. The road section encounters Orto Tokoy Reservoir at from km 32 to km 40. Currently, all throughout the section, the road height is well beyond 100 m higher than the highest water level of the reservoir. Built in 1957, Orto-Tokoy Reservoir is a reservoir of the Chu River, located in Kochkor District of Naryn Province of Kyrgyzstan at a surface elevation of 1750 m. It has a surface area of 24 km<sup>2</sup>, a maximum volume of 470 × 106 m<sup>3</sup>, and average depth of 46 m. Sanitary protected zone – 300 m (Annex G).
100. The road section situated closely to km 33-43, where the Orto Tokoy Reservoir starts on the Chu River and road comes close to the Chu River at km 8-14 that flows out from Orto Tokoy Reservoir. Orto-Tokoy Reservoir varies its water level based on seasonal fluctuation of Chu river runoff and it is located on the Chu River to provide irrigation water for the land in Chu valley.
101. 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 km<sup>2</sup>. 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 tributates and channels flowing into it.



Figure 8: View of Chu River and Orto-Tokoy Water Reservoir

## 5. Fauna

102. The biodiversity of this area is represented by a variety of types of ecosystems<sup>5</sup>. The main types of ecosystems are the desert and semi desert.

<sup>5</sup>Source Atlas KR, Physical geography of Kyrgyzstan

103. Fauna. 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.
104. At foothills, there are field mice, Central Asian tolai hare and grey hamster. Such species of birds as Isabelline chat, black redstart, Buchanan bunting and eagle neophron inhabit in piedmont steppes.
105. See the Annex I to find list of birds found on the territory of Western Issyk-Kul due to monitoring results.
106. Below specified species of birds registered in the KR Red Book may inhabit in the project area.
107. Based on the analysis of the Red Data Book list of the Kyrgyz Republic, the species of birds and mammals in the territory of the planned activities are:
- *Aquila chrysaetos* (Linnaeus)
  - *Circaetus gallicus* (J.F.Gmelin)
  - *Syrrhaptes paradoxus* (Pallas)
  - *Falco cherrug* J.E. Gray
  - *Accipiter badius* (J.F.Gmelin) – on the data Biosphere Directorate (monitoring, spring 2015, amount - 2, migration)

According to the list of birds included in IBAT system, it was determined that eight (8) species are not included in the Red Data Book, Kyrgyz Republic, 2006 as shown in Table 11.

**Table 11: Species Listed in IBAT System and Red Data Book KR, 2006**

Taxonomic group	Species	Common name	IUCN Red List Category	KZ Book Red
Birds	<i>Aegypiusmonachus</i>	Cinereous Vulture	NT	
Birds	<i>Aquila heliaca</i>	Eastern Imperial Eagle	VU	
Birds	<i>Aythya nyroca</i>	Ferruginous Duck	NT	
Birds	<i>Branta ruficollis</i>	Red-breasted Goose	EN	Absent
Birds	<i>Chlamydotis macqueenii</i>	Asian Houbara	VU	
Birds	<i>Circus macrourus</i>	Pallid Harrier	NT	
Birds	<i>Clanga clanga</i>	Greater Spotted Eagle	VU	
Birds	<i>Columba eversmanni</i>	Yellow-eyed Pigeon	VU	Absent
Birds	<i>Coracias garrulus</i>	European Roller	NT	
Birds	<i>Falco cherrug</i>	Saker Falcon	EN	
Birds	<i>Gallinago media</i>	Great Snipe	NT	Absent
Birds	<i>Gypaetus barbatus</i>	Bearded Vulture	NT	
Birds	<i>Gyps himalayensis</i>	Himalayan Griffon	NT	
Birds	<i>Haliaeetus leucoryphus</i>	Pallas's Fish-eagle	VU	
Birds	<i>Limosa limosa</i>	Black-tailed Godwit	NT	Absent
Birds	<i>Neophron percnopterus</i>	Egyptian Vulture	EN	
Birds	<i>Numenius arquata</i>	Eurasian Curlew	NT	Absent
Birds	<i>Oxyura leucocephala</i>	White-headed Duck	EN	
Birds	<i>Pelecanus crispus</i>	Dalmatian Pelican	VU	
Birds	<i>Tetrax tetrax</i>	Little Bustard	NT	
Bivalves	<i>Euglesa gurvichi</i>	Not available	DD	Absent
Fishes	<i>Capoetobramakuschakewitschi</i>	Chu Sharpray	DD	
Mammals	<i>Cuon alpinus</i>	Dhole	EN	
Mammals	<i>Lutra lutra</i>	Eurasian Otter	NT	
Mammals	<i>Mustela altaica</i>	Altai Weasel	NT	Absent
Mammals	<i>Ovis ammon</i>	Argali	NT	
Mammals	<i>Vormela peregusna</i>	European Marbled Polecat	VU	
Snails and Slugs	<i>Segmentina servaini</i>	Not available	DD	Absent

IUCN categories are classified as in Figure 9.

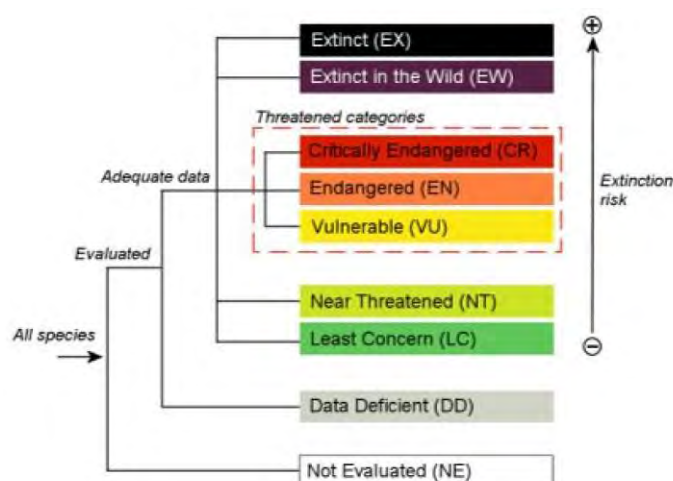


Figure 9: Classification Chart

108. The study was conducted based on technical discussions with Issyk-Kul Biosphere Reserve Directorate, in which they presented data; along with a discussion with the famous biologists Eric Shukurov and Sergey Kulagin, supplemented also by literature review (The Red Data Book of the KR, Physical geography of the KR, Atlas KR, etc.). More detailed information in Annex J.
109. These birds belong to the desert and semi-desert species; main feeding or hunting for these birds are in the foothills, and the mountain highlands (also see the Minutes of Meeting with General Directorate of “Issyk-Kul” Biosphere Reserve in Annex L).
110. The Project Zone is located in anthropogenic territory, so that these types of birds and mammals, if present, may be found only close to the mountains highland areas, habit areas are shown in the tables 1, 2 in Annex J and potential negative impact from construction works are not anticipated.

## 6. Flora

111. 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 steppes. 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*).

## 7. Biosphere Reserve, Zoning, and Protected Areas

112. As of February 2011, the Protected Areas within Kyrgyzstan have an agglomerated area of 1,189,507 hectares, which is 6.3% of country’s total area. These Protected Areas are composed of:
  - 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 - Game (Zoological) Reserves,
    - 2 – Complex Reserves (IUCN Category IV).

113. The Nature Reserves (IUCN Category I) that were established for nature conservation and scientific research, and correspondingly prohibit any economic activity violating natural complexes. In addition, the Biosphere Territory of Issyk-Kul (established in 2000) has a status of protected area of national significance. By Ministerial Decree Issyk Kul Protected Area was set up for the purpose of: (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.
114. The Ramsar Convention was signed by the former Soviet Union in the 1970s and subsequently in 1976; the Issyk-Kul Nature Reserve was designated as a wetland of international importance. A government directive from January 2000 regulates the activity of the Issyk-Kul Biosphere Reserve Directorate (BRD). In September 2001, by decision of the United National Educational, Scientific and Cultural Organization (UNESCO), the Issyk-Kul Biosphere Reserve became number 411 on the list of world biosphere reserves. The Issyk-Kul Biosphere Reserve coincides with the borders of Issyk-Kul Oblast. In March 2003, with independent Kyrgyzstan this designation was reinstated following the ratification by Parliament on 10 April 2002. Succeeding, the former Issyk-Kul preserves have been registered as Ramsar sites with information needing to be updated with the secretary of the Ramsar Convention.
115. To pursue and maintain objectives sustainable development in the 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 the zones, consultations were done with related government and non-governmental participants, the Issyk-Kul Biosphere Reserve, in accordance with UNESCO requirements. These zones consist of core, buffer, transition and rehabilitation zones. The zoning has major implications on future development of the region. Goals for protection and development differ by zones, as do standards for use. Table 12 summarizes zones and their description.
116. Ensuring that the Biosphere Reserve is not affected by Project activities, subcomponents have been suitably located and the Project ensures that intended activities comply with the designations: (i) Balykchy, the landfill is in the zone for “sanitation”; (ii) Cholpon-Ata, the landfill is within the transition zone, on land proposed for “extensive development”. The main theme in these areas is for development of existing and proposed land use and designated for improvement and sanitation; and (iii) Karakol, the landfill is in the transition zone, similar to the one in Cholpon-Ata. Characteristics of each zone are summarized in Table 12.

**Table 12: Zoning Criteria for the Issyk-Kul Biosphere Reserve**

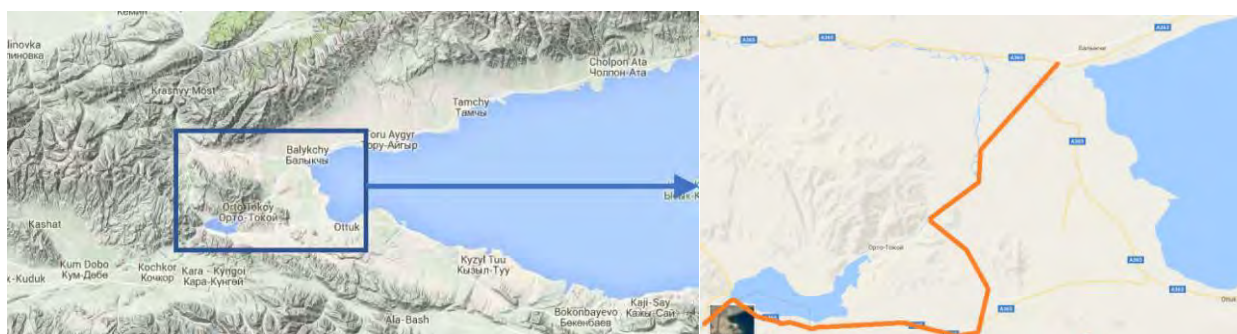
Zone	Sites	Description	Content
<b>Core Zone</b>	Glaciers	Primary source of water retreat/shrinkage Monitoring of changes in ecosystems, scientific research, other activities that do not disturb natural processes Stringent protections for entire natural complex	Stringent protection for the entire natural 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	
<b>Buffer Zone</b>	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, controller 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 settled areas	Environmental education sites, Scientific research and Ecotourism	
<b>Transitional Zone</b>	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	
<b>Rehabilitation Zone</b>	Abandoned mines	Damaged ecosystems	Areas have suffered environmental
	Other damaged sites	Subject to improvement	



Zone	Sites	Description	Content
			damage and require restoration

Source: Biosphere Reserve Directorate

117. Furthermore from the Regulation Biosphere Territory "Issyk-Kul" (24 January 2000, amended 5th November 2002, 28th June 2005, 19th September 2006) under III. Territorial Division and Zonation:
118. Rehabilitation area includes anthropogenically disturbed areas that require regeneration and remediation measures (mineral deposits, tailings, highways, settlements, degraded land, stock trails and resting areas)".
119. Hence, starts of the road reconstruction (0 km Balykchy) and highway6 are considered part of the Rehabilitation Zone. Also in Annex H, the letter-answer from Issyk-Kul Reserve General Directorate, confirmed that road project is related to Rehabilitation Zone. The project location map is as shown in Figure 10.



**Figure 10: Location of Project Road**

## 8. Endogenous and exogenous processes

120. **Seismic hazard.** According to seismic regionalization of the Kyrgyz Republic territory, the project area relates to 8-point seismic zone (SNiP KR 20-02:2009).
121. **Mudflow hazard.** The schematic map shows areas where mudflow and flood may activate. Flood period lasts within the entire summer period on large rivers of the region, showing the peak flood in July at piedmont and dissected areas. Mudflow during flooding may happen one and more times a year.
122. **Slope flows** - the north-western part of the Balykchy and eastern part of the Orto-Tokoy Village, 10-14 km LHS of Chu River from the road 1km. But all these points situated far from of the project road, approximately 1- 5 km.
123. Locations of these hazards are indicated in Figure 11 while Table 13 summarizes these details. However, it is noted when there are intensive, locally concentrated atmospheric precipitations/ storm generated, mudflows and/or storm flooding areas that were not specified in the map may appear.

<sup>6</sup> On the Figure 8 general situation of Biosphere Reserve is shown, and highways in the Rehabilitation zone are not shown. Rehabilitation zone highlighted red, in accordance to Regulation and the Letter from Issyk-Kul Reserve General Directorate, Highways relate to the Rehabilitation zone.



**Figure 11: Possible Zones of Natural Disasters**

**Table 13: Forecast of Possible Activation of Mudflows and Floods**

N	Rural district	River	Settlement	Facilities that might be affected
1	Balykchy	S Chu River	0 -14 km the road	Farmland beside the road
	Orto-Tokoy Village	Slope flows	In part of the Orto-Tokoy Village	club, sports ground, club, mosque and houses (made dams), 1-5km away from the road

Source: official website of Ministry of Emergencies, KR

## 9. Socio-economic Information

124. By 2009 census, Issyk-Kul Oblast has a population of 425,116 people, with than 2/3 of total population residing in rural areas. The capital of the oblast is Karakol. Within the oblast there are six colleges and lyceums, with some 2,580 students and 295 teachers. Higher education consists of six universities, with the largest in Karakol. Humanitarian education prevails over technical education. The districts in Issyk-Kul (and respective capitals are as follows): Ak-Suu District(Karakol); Jeti-Oguz District (Kyzyl-Suu); Tong District (Bokonbaev); Tup District (Tyup); and Issyk Kul District (Cholpon-Ata).
125. Ton region was formed in 1936 and it is located on the southwestern part of the Issyk-Kul hollow. The region's territory is of 7230 km<sup>2</sup>, the region borders on Zheti-Oghuz region on the east, on the south-west - on Naryn oblast, on the north-west - on Chu oblast. In administrative terms the region is divided into 9 village authorities: Ak-Terek (6 settlements), Kel-Tor (3), Kok-Moinok (3), Bolot Mambetovski (4), Kun-Chygysh (2), Ton (3), Tort-Kul (3), Ulakol (5), and Kadzhi-Sai (1). In territorial terms, the region includes Balyckchy Town of oblast significance (of 19 km<sup>2</sup> area), which includes Balyckchy Town and Orto-Tokoy urban-type settlement.
126. According to data of the National Statistical Committee of the Kyrgyz Republic, total number of residential population of the region is 50.8 thousand people as of January 1, 2014.
127. Balyckchy. Town of oblast's area is 38 km<sup>2</sup> with residential population of 45.1 thousand people (Balyckchy Town - 44.6 thousand people, Orto-Tokoy urban-type settlement with 0.5 thousand people). Average population density of the region is 7.8 persons per 1 km<sup>2</sup>.
128. Administrative center of the region is Bokonbaevo village with residential population of 10 648 people (according to 2009 census results). Number of households in the region is 10 986.
129. The region's territory is located between the southern bank of the Issyk-Kul Lake and Teskei Ala-Too range and has natural exit to the west from the hollow through Boom ravine. The range's piedmont is composed of Meso-Cainozoic deposits which is severely dissected by gorges and river valleys. Coastal zone of the lake is covered by lakeside flat lands, river fans; it is sometimes interrupted by giving place to piedmont ridges. Szyrts stretch to the south from

the Teskei Ala-Too range. Balykchy-Karakol and Bishkek - Torugart highways pass through the region's territory.

## 10. Cultural and Archaeological Resources

130. In March 2016, an archaeological investigation was performed by a local archaeologist historical and cultural heritage sites and objects in the vicinity of the project within the territories of Jumgal district of Naryn oblast and Jaiyl district of Chu oblast in accordance with the Technical instructions and norms of the method of archaeological investigations<sup>7</sup>.
131. The objectives of the archaeological investigations are:
  - Determining the presence or absence of monuments of historical and cultural heritage, their cultural significance, suspected object of cultural heritage along the entire length of the project road;
  - Definition of preservation of cultural and containing deposits of historical and cultural heritage;
  - Development of recommendations for the implementation of measures for the conservation of archaeological and cultural heritage.
  - According to the results of field research, data cultural monuments were not detected in the visible area of the road route is elevated above ground facilities, so have not been identified and included in the survey list. Monuments are objects placed directly on the ground in the form of small hills and clusters of stones. In order to prevent possible impacts on cultural heritage in this area, it was decided to conduct archaeological research.
132. Within the section the significant archaeological resources consist of the following:
  - 1). Sary-Bulun caravansary (N42.400664 E76.099044) - around 8 km from Balykchy in the direction of Kochkor, (RHS) 35 m to the north-west from the road as shown in Figure 12. This is ruin of roadside inn discovered in 1971-1973 by Vinnik D.F.



**Figure 12: Sary-Bulun Caravansary Ruin (N42.400664 E76.099044)**

133. Based on the results of the research, report has been prepared, which was sent to Kyrgyzstan MoCIT for opinion (Appendix F). This object of historical and cultural heritage is the object of study and protection of the Ministry of Culture, Information and Tourism of the Kyrgyz Republic (MoCIT KR). To prevent exposure to this object it is necessary to develop Management plan for object of cultural heritage, according to the law protection zone of objects is not less than 50 m and therefore all questions related to the establishment of protection zones, procedures, management plans should be coordinated with MoCIT KR and local government.
134. On the basis of the findings (Appendix F), during the detailed design, Consultant should send the road design along with the Management plan for objects of cultural heritage for coordination with MoCIT KR.
135. In accordance with the Law of the Kyrgyz Republic on historical cultural heritage in the event of cultural monuments found, all construction works must stop and report the findings to the local executive authorities or any other competent organization (Institute of History and

<sup>7</sup> Provisional Regulations on the procedure of the archaeological survey. Approved by Decree of the Government on July 11, 2014 under the number 386; Avdusin DA Field Archaeology of the USSR. - M., 1980. - p.58-113.



## 11. Sensitive Receptors

136. Sensitive receptors are those areas where the occupants are more susceptible to the adverse effects of exposure contaminants, pollutants and other adverse substances that the activities may generate. These generally include residential area, bazaars, cultural sites and etc. Such facilities along the project road section as referred to the alignment sheet are:
- Balykchy (km 00+000) – This is the start of the road section and with considerable number of people around (industrial zone, 3-4 km).
  - Tash-Saray (km 11 + 000) – Residential areas near the road (nearest house from the ROW 10-11 m)
  - Cultural and historical sides:
    - 8 km, Sary-Bulun caravansary, RHS - 35 m from the road.
    - 11 +500 km, on the LHS is a cemetery – 50 m from the road.
- Figure 13 presents the aero photo that indicates that residential buildings are at least 20m away from the edge of car lanes while Figure 14 shows the industrial area in Balykchy.



**Figure 13. Tash –Saray Residential Area**



**Figure 14: Industrial Zone, Balykchy**

137. Aside from the possible impact due to noise, dust, vehicular emissions during construction and operations of the project, public safety can be a concern when trucks, equipment and construction materials are brought to the sites near these sensitive receptors. Disturbances may occur during construction hours and treatment period. Traffic safety may be concern with hazards to children as they walk or commute to and from schools. However, it is noted that all residential buildings are always not less than 20m away from the edge of car lanes and many of the impacts are considered to be not so severe and mitigatable.

## 12. Baseline Measurements

138. Baseline measurements in water quality, air quality and noise/vibration were obtained in selected spots. Water quality measurements were obtained where construction may impact river quality. Air quality and noise/vibration measurements were obtained in likely receptor areas. These results shall be used as reference parameters in monitoring the impacts of

construction and operations of the project. International standards were also presented herewith for comparison with KGZ standard; subsequently the more stringent standards shall be used as monitoring requirements.

139. Water quality and air quality measurement were done by the Ecological monitoring Department of the SAEPP. While noise and vibration measurements were done by the Department of the sanitary protection of the Ministry of Health.

### 12.1. Water Quality Measurements

140. Sampling was done according to GOST P 51592-2000 "Water. General sampling requirements", WSS 33-5.3.01-85 "Instruction on sampling for waste water analyses". Legislative requirements were observed.
141. As baseline data in water quality, it is proposed that measurements would be done for the most relevant parameters: Turbidity, Oil Products, pH, Dissolved Oxygen (DO), Total Suspended Solid (TSS), Electric Conductivity (EC) and Temperature, although only Turbidity and Oil Products had been planned and measured in F/S stage. Therefore, the contracted laboratory was instructed to obtain the measurement in bodies of water. It was observed that the downstream areas utilize water from the river mainly for agriculture and domestic uses. Drinking water is obtained from installed wells and from springs. The results of such water quality testing only in F/S stage are shown in Table 14.

**Table 14: Water Quality Measurement Results within the Section**

No.	Locations	Km in Road	Turbidity, cm	Oil Products, mg/l
Maximum Permissible Concentrations (MPC)				
According to national requirements			Not less than 20	0.3
According to International legislation (EC)			Not less than 100 cm /depth	not visible in the form of a film
	Chu River near Tash-Saray village		41	<0.05
	Chu River Hydro-post, Bridge		37	<0.05

Note: Measurements done in Nov. 30 – Dec. 3, 2015, Annex E.

### 12.2. Air Quality Measurements

142. Measurement results will serve as reference values for monitoring during the construction phase. Air quality was measured at 2 points along the road, which were identified as areas sensitive to air pollution due to the proximity of street markets and other special facilities.
143. In the project area there is no large industrial source of pollution affecting the air quality, but it is influenced by dust from cars. The nearest station air quality monitoring from the project area is located quite far away - in Tokmok (Chu valley) and Cholpon-Ata (Lake Issyk Kul). Naryn region has no air quality monitoring stations.
144. Most of roads are located along foothill and mountain areas with the perimeter surrounded by mountain ranges. The height of the terrain within 1630-1760 m above sea level. Sparse stepped vegetation is found in uninhabited areas. Occasionally, there are farmlands especially those near the Chu River; however, large portions along the project road are uninhabited.
145. The only source of dust, noise and vibration is road transport. The content of inorganic dust in the air due both to climatic conditions of the region and with the movement of vehicles. For air quality, the most relevant parameters to be measured would be Dust, SO<sub>2</sub>, and NO<sub>2</sub>. Accordingly, the contracted laboratory was instructed to obtain the measurement in populated areas along the project road. The results of such air quality testing are shown in Table 15.

**Table 15: Air Quality Measurement Results**

No.	Measurement Point Location	Chainage	Air Quality Parameters (mg/m <sup>3</sup> )		
			Dust	SO <sub>2</sub>	NO <sub>2</sub>
Maximum Permissible Levels (KR standards)			0.5	0.5	0.085
Maximum Permissible Levels (IFC)			-	0.02	0.04
	Balykchy (start of the Project road)		0.29±0.07	0.05±0.006	0.022±0.004
	Tash-Saray, close to the Chu River, opposite the houses, LHS				0.027±0.005

Note: Measurements done in Nov. 30 – Dec. 3, 2015, Annex E.

### 12.3. Noise and Vibration Measurements

146. The main sources of the noise in the study area are those generated by vehicle engines, especially those carrying heavy loads running over unpaved road and at low speed. This noise is also aggravated by the noise of friction of tires on the road surface. Since there not many settlements and their residential buildings are located at least 20m away from the edge of car lanes in the area, noise is not a major problem. All noise measurements were taken at 3 m from the roadside.
147. The noise level is expected to decrease rapidly with distance from the road: at a distance of 8-9 meters from the road where reconstruction will be done, noise level drops to a level less than 60 dB (A), i.e. up to the recommended maximum level at night for the populated areas. According to the regulations limits outside noise from road transport is 80 dB (A) for vehicles with an engine capacity of 150 kW or more. When measuring noise in the environment as it is necessary to measure the wind speed, air temperature, barometric pressure, altitude and time data recording of the measurement (e.g., day or night).
148. Vibration is a danger to human health and the environment and mainly generated by transport, construction equipment, industrial facilities and other sources. As an only mean of protection against vibration effects on the environment is the usage of low vibration generating type equipment. Prohibition of idling/over-driving the equipment and well-maintenance of equipment is things of course.
149. The enforcement of the standards of pollutions for noise and vibration lies with the Department of Sanitary and Epidemiological Surveillance Ministry of Health of the Kyrgyz Republic. The measurements were done for points at 3 m from the roadside. The noise and vibration levels are below the prescribed limit as shown below.
150. The noise level was measured with the Oktava 101A noise meter No. 04A445. On this section of the road, only two times of noise measurements were carried out at two points in Balykchy (the beginning of the road) and Tash-Saray, close to the Chu River (on the opposite side there are houses are located) as shown in Table 16. Although there are monitoring results of another 14 points in Appendix E, these are the points located along Kochkor-Chaek-Suusamyr Section.

**Table 16: Noise and Vibration Measurement Results**

No	Measurement Points	Locations	Aspects		
			Noise, dB (A)		h, dB (A)
			Day	Night	
	KGZ Maximum Permissible Levels		70	65	108
	IFC Guidelines		55	45	
	For Residential; institutional; educational				
	For Commercial & Industrial		70	70	
	Balykchy (start of the Project road)	0+000	43.1	-	92.4
	Tash-Saray, close to the Chu River, opposite the houses, LHS	11+000	40.2	-	91.7

Note: Measurements done in Nov. 30 – Dec. 3, 2015. Annex E.

## **E. Environmental Impacts and Mitigation Measures**

### **1. Impacts in the Project Phases**

151. The environmental impacts and mitigation measures presented in this IEE Report were based on the results of the conducted field surveys. The Section “Balykchy (Km 0) to kilometer - post 43 (Km 43)” will entail upgrading of road along its existing alignment. In some spots, road runs close to sensitive receptors such residential areas, cultural and historical sites or others.
152. It is anticipated that main impacts will include the following: (i) noise, dust and vehicle emission, that are especially of high significance within the settlements alongside the Project road and where sensitive receptors are located such as schools, hospitals, mosques, cemeteries and other cultural historic objects in general; (ii) impacts on water courses and rivers due to bridge rehabilitation, earth work, blasting works along the rivers; (iii) impacts from material transportation from borrow sites; (iv) impacts of tree cutting alongside the Project road due to site clearance activities; (v) impacts from asphalt plant and aggregate crushers; and (vi) impacts from contractor's working camps. Impacts have been divided in to design phase, construction phase, and operation phase respectively.
153. The main impacts from reconstruction of the road are described below in Table 17. There is no impact at preconstruction stage since there is no activity at the site. However, well planning/designing is necessary in the preconstruction stage to prevent environmental impacts caused during construction or operation.
154. Impact is associated with planning and designing of the road alignment in the areas with natural disasters (flooding, mudflow). The main types of natural disasters are mudflows, floods. Slope flows - the north-western part of the Balykchy and eastern part of the village Orto-Tokoy, 10-14 km LHS of Chu river from the road 1km. But all these points situated far from of the project road approximately 1- 5 km.

**Table 17: Main Environmental Impacts**

Component	During construction	During the operation period							
Air pollution	<p>Construction machines and machinery are sources of emission of air pollutants during construction,</p> <p>the main pollutants are:</p> <ul style="list-style-type: none"> <li>• carbon monoxide;</li> <li>• hydrocarbons;</li> <li>• nitrogen dioxide;</li> <li>• soot;</li> <li>• sulfur dioxide;</li> <li>• inorganic dust</li> <li>• benzopyrene</li> </ul> <p>Dust generated due to vehicular traffic, operation of equipment, upon excavation and welding.</p> <p>To determine hazard category of the facility, it is necessary to estimate the hazard category in accordance with the KR Law "General technical regulations to ensure environmental safety in the Kyrgyz Republic".</p> <p>While studying and considering similar construction work during reconstruction of roads, hazard category of the facility was determined as II, III.</p> <p>The II hazard category requires calculation of pollutants' dispersion in ambient air to determine dispersion distance and maximum ground level concentration of harmful substances. For the category III, hazards defined by calculation of emissions mass are design values and used as maximum permissible emissions.</p> <p>Short-term impact is expected.</p>	<p>Atmospheric air pollution depends on traffic density.</p> <p>According to conducted calculations, planned traffic density will be <u>2,144 vehicles</u> per day as of the year 2030.</p> <p>Having studied and considered various similar calculations to determine pollutant emissions under various traffic intensity during the operation period, we can conclude that maximum ground-level concentrations of pollutants at a distance of 3 m to 5 m from the road will not exceed the maximum permissible concentration.</p> <p>Long term impact is expected.</p>							
	<p>works in mountainous area along the Chu River. During blasting works, the following substances will be emitted into the atmosphere: Inorganic dust: 70-20% SiO<sub>2</sub>, Carbon monoxide, Nitrogen (II) oxide, Nitrogen (IV) oxide.</p> <p>When blasting operations, emissions are considered as the burst release and are subject for calculation and counting to compare with maximum permissible emissions. In order to reduce the environmental impact of blasting works, it is necessary to provide mitigation measures.</p> <p>Short-term impact is expected.</p> <table border="1"> <thead> <tr> <th>No</th><th>Blasting sides</th><th>Monitoring</th></tr> </thead> <tbody> <tr> <td>19 km +500</td><td>a narrowing of the road up to 12 m wide, at this point the Rockies, are likely to be carried out blasting, as well as the development of hydraulic hammer.</td><td></td></tr> <tr> <td></td><td>d narrows between mountains, it is necessary to excavate them with veal.</td><td>hu river (Orto-Tokoy reservoir)</td></tr> </tbody> </table>		No	Blasting sides	Monitoring	19 km +500	a narrowing of the road up to 12 m wide, at this point the Rockies, are likely to be carried out blasting, as well as the development of hydraulic hammer.		
No	Blasting sides	Monitoring							
19 km +500	a narrowing of the road up to 12 m wide, at this point the Rockies, are likely to be carried out blasting, as well as the development of hydraulic hammer.								
	d narrows between mountains, it is necessary to excavate them with veal.	hu river (Orto-Tokoy reservoir)							
Noise and vibration impact	<p>Within the period of construction works, sources of non-continuous noise are running engines of construction and road-building machinery. Sound is expected to generate at the construction site upon operation of construction equipment, delivering of building materials, digging of trenches and pits, removal and delivery of soil, blasting works etc.</p> <p>The blasting works is additional source of noise and vibration. However, these works are conducted far from populated areas and other sensitive receptors. These works should be carried out during daylight hours, in accordance with the Blasting Works Management Plan.</p> <p>Short-term impact is expected.</p> <p>Sensitive receptors are those areas where the occupants are more susceptible to the adverse effects of exposure contaminants, pollutants and other adverse substances that the activities may generate. Such facilities along the project road section as referred to the alignment sheet are:</p> <ul style="list-style-type: none"> <li>• Balykchy (km 00+000) – This is the start of the road section and with considerable number of people around.</li> <li>• Tash-Saray (km 11 + 000) – Residential areas near the road.</li> <li>• Cultural and historical sides:</li> </ul> <p>✓ 8 km, Sary-Bulun caravansary, RHS - 35 m from the road.</p> <p>✓ 11 +500 km, on the LHS is a cemetery – 50 m from the road.</p> <p>Among all, construction noise, including heavy equipment, lorry and vehicles passing, is estimated as exceeding the allowable level, even if at far distance of 20m away from the road. It is recommended to monitor the actual construction noise at the locations of sensitive</p>	<p>Noise and vibration levels at higher traffic intensity may also have a negative effect on sensitive receptors, especially at night.</p> <p>Level of noise and vibration impact shall depend on road traffic intensity and road pavement.</p> <p>According to measurements carried out in November 2015, the existing road coating noise and vibration levels do not exceed the required standards (table 16).</p> <p>However, traffic noise estimated with driving velocity of 120 km/h in the year 2030 is far exceeding the allowable limit. To prevent this noise pollution, the driving speed around residential areas shall be suppressed to 70km/h.</p>							



Component	During construction	During the operation period
	receptors and, if necessary, install noise barrier immediately. Construction vibration is estimated as negligible to the KR Standard and no special measures other than specified in laws (Figure 14). However, if the actual vibration caused seems to be unendurable for receptor, proper measures have to be taken as well.	(Figure 12)
Surface waters	<p>Surface waters may be polluted due to discharging of production and domestic wastewater, flowing of chemical and mechanical pollutants from the road into water. Some pollution of surface water may result from spills of fuel and lubricants from equipment and containers to streams by washing. It may also be polluted during construction, reconstruction of bridges and sedimentation during the blasting works.</p> <p>Out of common pollutants of water bodies, the biggest concern may cause penetration oil productions into water. First signs as individual colored spots appear already when upon spilling of 4 ml/m<sup>2</sup>. Maximum permissible concentration for oil and oil products is 0.1 mg/l - 0.3 mg/l according to Kyrgyz standards while "not visible in the form of a film" according to EU legislation. To prevent contamination of surface, it is necessary to provide mitigation measures, which will be described in the Environmental Management Plan (EMP).</p> <p>During the construction period, water bodies will be affected upon repair, widening 3 bridge 55 culverts will be replaced (Table 8). This impact will be expressed in possible contamination by soil, remaining parts of pipes, concrete headwalls, oil products, oils and by debris on the culverts areas.</p> <p>Short-term impact is expected.</p> <p>Drilling and blasting works can have a negative impact on water bodies. At the Km 41, there is water body flows along the road. Water body polluted with soils, dust, remnants of the rocky rocks, the surface layer of soil, vegetation; these contaminants can cause siltation of the water body, and the deterioration of water quality.</p>	The River's floodplain might be polluted by runoff from roads and bridges, accidental spills of oil products and oil as well as lead, which often concentrates the roadside. Long-term impact is expected.
Contamination and erosion of soil	<p>During the construction period, asset of work processes associated with construction of roadbed usually causes the greatest damage to environment. Soil contamination is first observed on lands temporarily used as borrow pit, construction site as well as on the road being reconstructed. Soil might be also contaminated by installation and operation of asphalt concrete mixing plant.</p> <p>Soil might be contaminated by POL coming from construction equipment. It is assumed that this effect will be minimal and take place only within the roadside. Such impact might be reduced, if machinery is maintained in good condition by proper disposing of used oil. Soil shall be slightly eroded in the roadside due to road reconstruction, since major work is executed on the existing road with protective works in the drainage system.</p> <p>Borrow areas, areas of the camp, placement of asphalt concrete mixing plants, crushing plants.</p> <p>Impact of borrow pits will be expressed by air pollution, noise, vibration, impact on soil and ground.</p> <p>Land acquisition according to the project documentation will be: temporal distribution of land - 20 ha. During the construction, location of the construction site will identify on detail design phase, and temporary allotment for construction has to - 1.0 ha. Volume of earthwork is presented in the Table 7 and borrow areas – in Table 9</p> <p>Short-term impact is expected.</p>	<p>Main impact will be expressed in pollution of the roadside soil by lead compounds.</p> <p>Long term impact is expected.</p>
Flora and Fauna	<p>During the construction period, reconstruction of road may cause insignificant impact on flora and fauna due to accident going of construction machinery beyond the construction site. There might be observed the following factors as well:</p> <p>Factors that prevent natural migration of species to temporary and permanent habitats, exchange of gene pool, reproduction, etc. They are road construction elements - slopes, embankments, excavation, grade, fence and roadbed.</p> <p>Anxiety factors that frighten animals and violate their habitat are noise, vibration, light from the traffic flow. As we know animals' reaction to disturbance factor may differ according to species. Collision with oncoming traffic can cause death of fauna representatives on roads. All these factors lead to decrease in number of populations.</p> <p>During construction of bridges, crossings, culverts and road works along Chu River will be violated growing conditions of plants, wildlife habitat, and fish habitat.</p> <p>The impact will be in the form of increased noise and vibration in the daytime, salvo explosions in the next areas: km 19+500 and km 40-41 and by work of road construction machines and mechanisms. Elevated levels of dust and exhaust emissions.</p> <p>Given that the road had existed for a long time before reconstruction, established way of wildlife habitation in adjacent territory, may assume little additional impact on flora and fauna, which will be caused by road reconstruction.</p> <p>Tree cutting. Vegetation represented by small trees and mostly by shrubs. Most of species are elms and bushes. Tree cutting along the road in the preliminary assessment, the estimated</p>	<p>During the operation period, impact will be expressed by noise and vibration on local fauna, animal migration path, striking of animals crossing the street by vehicles, illumination of the road vehicles' headlights and blinding animals.</p> <p>Long term impact is expected.</p>

Component	During construction	During the operation period
	<p>number of trees to be affected is 30.</p> <p>Tree cutting is not provided, if the trees are located on the bank of the river, as technically expand the road towards the river cannot be, an expand of the road will be towards to the mountains.</p> <p>Short-term impact is expected.</p>	
Cultural and historical sites	<p>During construction, impact to cultural sites will be in the form of physical abuse and vibration exposure from operating machinery. Physical disturbance of these sites by construction workers.</p> <p>Short-term impact is expected.</p> <p>Cultural and historical sites:</p> <ul style="list-style-type: none"> <li>➤ 8 km, Sary-Bulun caravansary, RHS - 35 m from the road.</li> <li>➤ 11 +500 km, on the LHS is a cemetery – 50 m from the road.</li> </ul>	No any other impact is expected.
	<p>During construction period, construction and road building machinery shall influence on traffic resulting in impeded movement, possible crowding of cars and machinery, violation of traffic rules and possible emergencies. In order to prevent such situations, we need to provide for mitigation measures to regulate traffic.</p> <p>Safety during blasting works.</p> <p>Safety measures during blasting operations. Blasting work is carried out in strict accordance with the Regulation on the procedure of consideration and issuance of industrial security authorization documents, No.301 dtd. 30.05.2013, for conduct of blasting. Before start the work, install and shield signs of the danger zone boundaries, which at the time of the explosions will be encircled with posts. The approximate radius is 450-500 m zone, adapted by calculation or Regulation. When the depth of wells is more than 10 m duplication of electric explosive network is required. Location of pits, wells, and cameras are applied to the executive plan of the explosive field. Militants (detonating cartridges) set in the charges in final form. Blasting operations are carried out in a fixed time, as well as well-audible signals (ready, fire, rebound), which all should be well known. Explosives (explosives) are stored in special warehouses protected separately from explosives (NE).</p> <p>Installation of shields near power lines is obligatory mitigation measure during blasting works.</p> <p>Short-term impact is expected.</p>	<p>There may be cases of accidents: striking of people, animals when they cross the road.</p> <p>During operation period, the impact on traffic expected minimal due to arrangement of road signs and markings.</p> <p>Short-term impact is expected.</p>
Construction camps	<p>During construction period, construction camps will be established outside the territory of villages. Works schedule will be controlled in these camps. There may be formed of solid domestic waste, bad housekeeping, soil contamination may take place, local flora and fauna might be impacted on the territory and thereby cause concern of local population. The Environmental Management Plan includes measures focused on mitigation of such impact.</p> <p>Short-term impact is expected.</p>	No any other impact is expected

### Numerical Prediction of Air Pollution and Noise

155. Air pollution along the road, 6m away from the road centerline was predicted during operations and construction respectively as in Table 18.

**Table 18: Prediction of Air Pollution along Project Road**

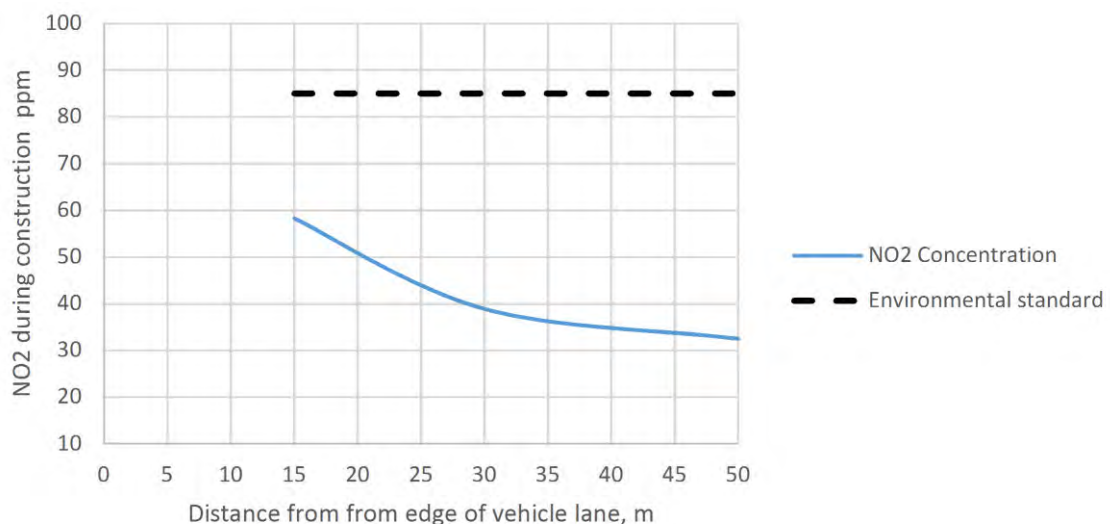
Year	Stage	Monitored or predicted	Daily traffic no.	Traveling speed	NO <sub>2</sub>	Dust	SO <sub>2</sub>
			No.	km/h	ppm	Ppm	ppm
IFC Standard							
Environmental standard in KG							
2016	Before construction	Monitored	-	-	(20-30)	(290)	(<50)
		Predicted	1,050	60	29	<290	<50
2017	During construction	Predicted	1,093	60	29	<290	<50
	Operation	Predicted	1,307	100	31	<290	<50
2020	Operation	Predicted	1,475	100	31.5	<290	<50
2030	Operation	Predicted	2,144	100	33	<290	<50

() monitored figures by Kocks at the distance 3m from road edge 15m is the minimum ROW width from road centerline

"Dust" was included in "SPM" in the table.

As shown in the above table, no air pollution is caused by passing vehicles during construction and operation periods except SO<sub>2</sub>.

156. Dust is generated by unpaved road mostly and the emitted portion of dust from vehicles is negligible to this 280 ppm. Therefore, no additional mitigation measures are required since dust concentration will be reduced even if vehicle number increases after paved in the future.
157. "Falling dust" generated by earth work and lorry passing over unpaved road at the location 20 away from car lane edge is 2 ton/km<sup>2</sup> and no prevention measure is required. However, passengers just beside the road may suffer from these dusts. Water spraying hourly is must during dry season especially.
158. Other than at along road, air can be polluted at the locations of asphalt/concrete batching plants, rock crushing plant, soil/rock borrow pits, material stock piles by their activities such as mixing of aggregate, crushing stones, sieving sand, heating bitumen, excavation of soil/rock etc., although these shall be located sufficiently away from settlements. Water spraying is must as well
159. Concentration of NO<sub>2</sub> during construction was estimated vs distance from road, considering equipment, trucks and public traffic together, using safety side assumption, and plotted versus distance from the edge of car lane as Figure 15.



**Figure 15: NO<sub>2</sub> concentration during Construction**

As shown in the above, concentration of NO<sub>2</sub> is accepted within the area farer than 20m from the edge of the car lane during construction and no special measures are required, other than conventional ones

### Noise impact

160. Noise level is different depending on the distance, as well as air pollution, between the receptor and source of noise(vehicle), type (truck or sedan) of the vehicle, traveling speed, number of passing vehicles, background level, weather conditions, etc. Considering all of these factors, noise level vs distance from edge of car lane, depending on the vehicle speed, using the vehicle numbers after operation in the year of 2030 when largest no. of vehicles is travelling, was estimated as Figure 16. There is no residential building from edge of vehicle lanes to 20m away.

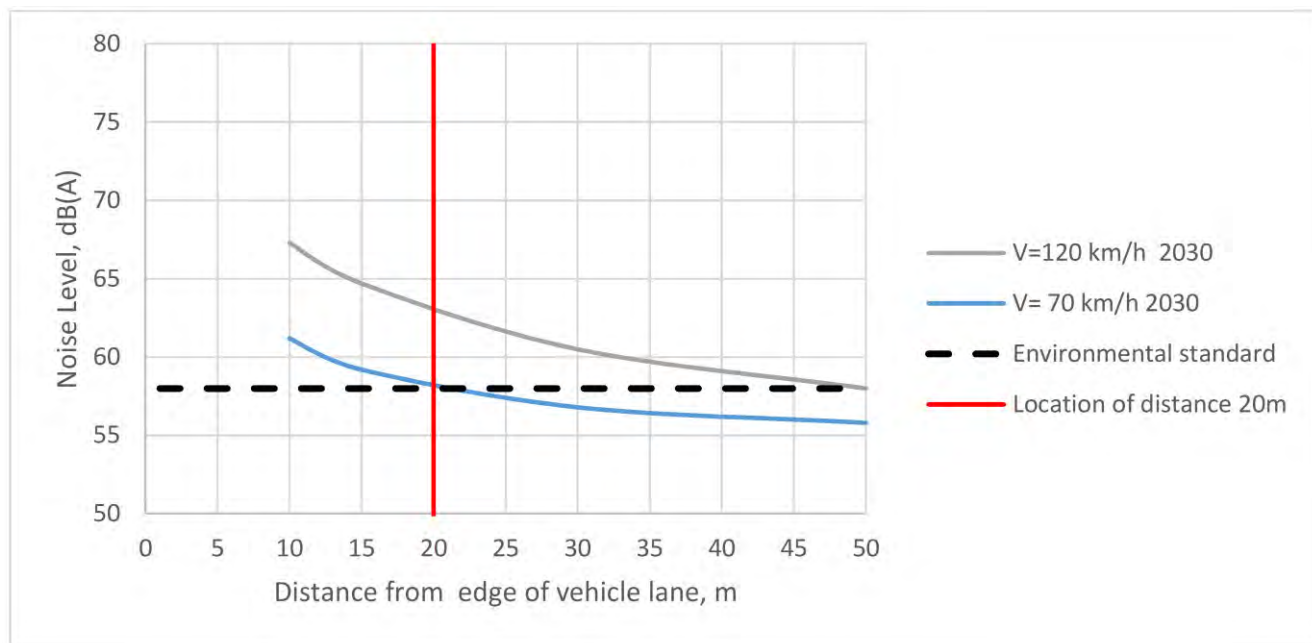


Figure 16: Simulation of Traffic Noise Level depending on Vehicle Speed

Noise level allowed for residential area is 55-60 dB (A) in KR guideline while World Bank specifies 55 dB only (or background +3 dB (A)). In the above figure, an allowable level of 58 dB were chosen, based on more strict guidelines of World Bank than as of KR, considering the actual background level of 55 dB as monitored in D/D stage. As shown in the above figure, noise level predicted is always greater than allowable limit of 58 dB (A) until 50m from the edge of car lane when the vehicle driving with speed of 120 km/h of design speed while it is almost less than the limit when the vehicle be driving with 60 km/h. Therefore, the mitigation measure to be proposed during operation is to limit the driving speed of vehicles 60 km/h, only for residential/sensitive areas.

Figure 17 is the simulation of noise levels until 2030 using driving speed of 100 km/h for references.

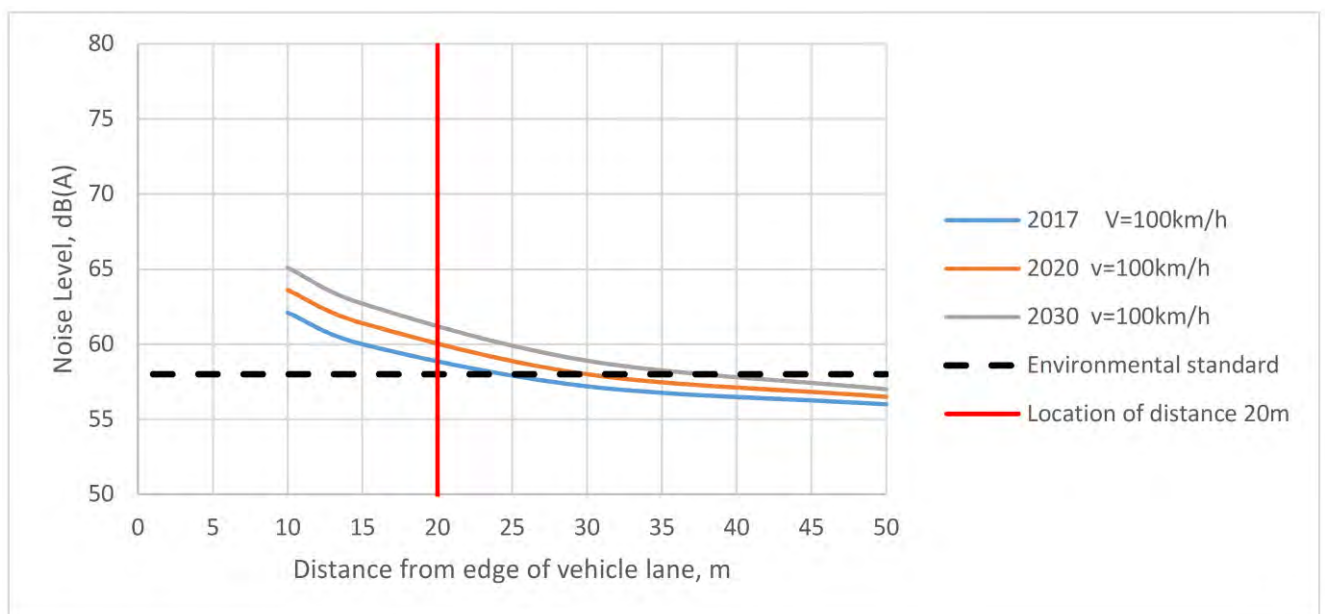


Figure 17: Simulation of Traffic Noise Level depending on the year

Grow of vehicle number is assumed 4% each year for safe side. Similarly, traffic noise level can be an issue after 2020 as well if the vehicles drive around with this design speed.

Within the period of construction works, sources of non-continuous noise are running engines of construction and road-building machinery. Sound is expected to generate at the construction site upon operation of construction equipment, delivering of building materials, digging of trenches and pits, removal and delivery of soil etc. In this project, an environmental standard of noise during construction was set, as per the guidelines of Word Bank, as 70 dB (A) during day time of short time compaction period. No construction work is proposed at the night time.

161. Along the road, noise levels vs distance during construction in 2017 was simulated assuming typical construction work sequence considering equipment, lorries and open traffic, with highest power level reasonably applicable, together with the case of installation of noise barrier, 3m high and 6m away from edge of car lane, as in Figure 18.

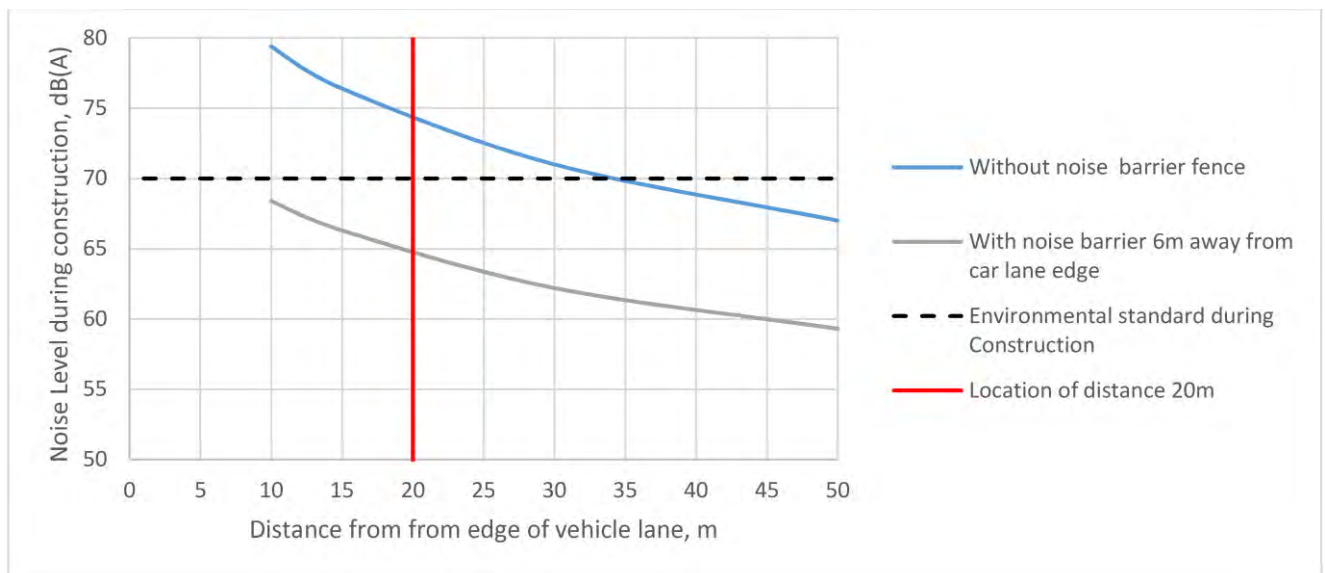


Figure 18: Simulation of Noise during Construction with/without Mitigation Measures

162. As shown in the figure, following can be concluded:
- The construction noise level is estimated to exceed the proposed environmental standard set for during construction, until the location of distance 35m from the edge of car lane, within which, there are residential houses/ sensitive receptors (school) in the villages and residents/ students there may be annoyed by these high-level noises during construction.
  - Generally, the primary source of construction noise is of embankment compaction machine at operation and, secondary, of dump tracks and of existing public traffic.
  - Therefore, the most effective mitigation measure is to suppress the transmission of noise from the main noise source, such as compaction machine, to the receptors only at the moment of compaction machine being operated in front of the residential houses/sensitive receptors.
  - To achieve this, tentative installation of a noise barrier at the distance 6m away from the car lane only at the time of compaction activity among all construction activities. The noise barrier can be a 3m high plastic sheet wall, supported by the frame of scaffold pipes. This wall can be easily removable and the cost shall be minimal.
  - Locations of possible residential house/sensitive receptors are:
    - Balykchy (km 00+000) – This is the start of the road section and with considerable number of people around (industrial zone, 3-4 km).

- Tash-Saray (km 11 + 000) – Residential areas near the road (nearest house from the ROW 10-11 m) but the residential buildings themselves are located at least 20m away from the edge of car lane.
- f. As a practical procedure for installation of plastic sheet wall, (1) the actual relationship of noise levels of compaction machine versus distances to the receptors shall be established by monitoring at the site, (2) distances of the sensitive receptors shall be identified in each village, (3) noise levels at each receptors estimated based on the actual noise vs distance curve, and (4) a plastic sheet shall be held along the road if the noise level exceeds 70dB (A) during compaction activity in front of the receptors. The noise barrier is removed away right to next location after embankment compaction there.
  - g. Those who are stationed at the stretch between car lane and barrier, such as street vendors and (illegally ROW encroaching) kiosk shop keepers, if any, are advised to move out there only when construction equipment (dozer or compactor) is working just in front of them and the noise is not endurable for them. Number of this Kiosk is very less. Thus, although the construction noise level is moderate, it is mitigatable.
  - h. From the experience of implementation of the road rehabilitation projects in other areas, if used vibratory rollers without vibration and apply measures for dust suppression on the effects of excess in the area of sensitive receptors, noise and pollutant concentrations in the ambient air are not marked. In this regard, plastic protective barriers are applied in case of excess of the actual parameter data.

If necessary, at the discretion of the Construction Supervision Consultant, it can be made more monitoring points near sensitive receptors.

Other than along the road, noise from batching plants/crushing plants and borrow pits can be the issue. They are supposed to be located at isolated area away from human settlement as per SSEMP.

## **Vibration**

163. Vibration levels were monitored place to place in Feasibility Study Stage and the results were in the range of 90-91dB (A) (acceptable level is 108 dB (A)), as is so high level already, and no vibration higher than this level is estimated in construction activity except blasting. Thus, no special attention/measure is required other than routine environmental protection procedure, such as equipment maintenance, no idling, restriction of operation hours, etc.

## **2. Mitigation measures**

### **2.1. Pre-construction phase**

164. The Detailed Design and Pre-construction Phases cover the period when the Design Consultant accepts the design work up to finalization of the Tender Documents and prior to the engagement of the contractor for the actual construction. The engineering designs shall include all the necessary work relevant to detailed site surveys, design computations, technical drawings, environmental and social requirements, technical specifications and tender documents. This will be followed by Tendering process from which the Client/Employer shall decide on the Contractor for the civil works. Since this will be funded by the Asian Development Bank (ADB), guidelines of the financier and the Client/Employer shall consider the environmental guidance obtained from this IEE Report.
165. Avoidance of impacts can be executed by proper planning/preparation during the pre-engineering and design phase. Contract documents should include clauses be formed based on the IEEs and EMPs of the project and communicated with sufficient emphasis to the Contractor. These impacts are discussed below and reflected appropriately in the EMP.
166. **Water Contamination** can occur at any places of earthwork (Annex A2) and rehabilitation of bridges (Table 8) /culverts (Annex A3).

The design engineer should consider the imminent contamination issue during construction of



bridge and road segment at these points. Special measures and technical specifications are clearly stipulated to eliminate any adverse water quality impacts. Construction methodology from the Contractor should incorporate measures to prevent and to mitigate water contamination during construction. Widening will be designed to the hills side, not to the river.

The river bank can be considered as ecologically relevant sites which warrant special consideration. The design engineers should take these items into consideration in finalization of the designs.

From 8 km to 14 km extension of the road should be carried out toward to the mountains, by cutting mountains. Trees located on the river bank near the road must not be felled.

In order to prevent the erosion of the river banks, in areas close to the river to the road layout (8 - 14 km), it is decided that the road widening will be conducted to hill side. If necessary, in order to prevent pollution of the river, defensive structures will be installed. The environmental impacts associated with this work can be minimized if culverts are rebuilt properly, i.e., properly sized and with the correct slope and downstream erosion/scour protection measures applied. If possible culvert work should take place during the dry season, no otherwise temporary bypasses will be necessary. A number of culverts convey irrigation waters flown based on a predetermined irrigation schedule, contractors have to contact closely with farmers in order to establish proper times schedule when work can take place and not harm crop development. Nearly all structures will be concrete box culverts, pre-casted, with each section set in place and sealed with a special commercially available gasket/sealant material. All 55 culverts will be replaced.

167. **Slope Stability** - To minimize impacts of erosion, side slopes of embankments will be designed to reflect soil strength and other considerations as included in the project specifications in order to reduce slips or erosion; for embankments higher than 6m, stepped embankments will be used. Use of "green measures", such as planting native vegetation will be a favored mitigation approach

For geology and seismic conditions, cuts on the mountain and hillsides should be stable or be reinforced; earthquake loading shall be applied to the design of structures, to ensure that seismic events do not have negative impacts during the operational phase of the Project.

168. **On Flora and Fauna** –The Design Engineers should provide guideline in the design for the Contractor to ensure that his ancillary facilities such as asphalt plants, construction camps and others are properly sited to protect indigenous flora and fauna. The Contractor should be instructed to avoid loss of trees/river contamination, where possible, and should widen the road to mountain side only, not to river side. Where trees must be felled, the Contractor should be instructed that each tree removed should be replaced by at least two new saplings of the same or similar species and be planted at suitable locations, or as designated by the tree owner. In the Detailed Design stage, number of trees to be cut is 30.

The river bank can be considered as ecologically relevant sites which warrant special consideration. The design engineers should take these items into consideration in finalization of the designs.

169. **Cultural and Historical Sites**, the Design Engineers should provide guideline in the design for the Contractor to employ techniques during construction works with minimal or no impact to any cultural and historical structures along the road. Physical cordon around identified sites should be installed to minimize construction impact and alert workers/people from disturbing cultural and historical sites.

Cultural and historical sites shall be protected. The historical monuments and cultural heritage are the objects of study and protection of the Ministry of Culture, Information and Tourism of the Kyrgyz Republic (MoCIT KR). To prevent exposure to these objects it is necessary to develop management plan for cultural and historical sites, according to the law protection zone of objects is not less than 50 m. Therefore, all questions related to the establishment of protection zones, procedures, management plans should be coordinated with MoCIT KR and local government.

Based on the findings of Archaeological Study (Appendix F), during the detailed design stage, Consultant should send the road design documents along with the Management plan for objects of cultural heritage for MoCIT KR approval.

170. **Environmental Safeguard Training** shall be done. CSC will designate his own environmental specialist for the implementation of EIAs, their EMPs and monitoring compliance with environmental clauses contained in the contract specifications. Correspondingly, the Contractor will do the same. Preferably during the early part of the construction, the CSC will provide sufficient briefing seminar on EMP implementation and compliance monitoring for the CSC's inspectors as well as the contractor. Such seminar should be carried out during the pre-construction, but after the awarding of the contract. Participation of Contractor will be mandatory.
171. **Health and Safety** programs shall be established. The Contractor shall be provided with guidelines in the design or in the Technical Specifications to ensure Occupational Safety and Health Act (OSHA) in addition to traffic safety issues shall be mitigated during the construction phase of the Project. The Contractor shall be provided guidelines in the design or in the Technical Specifications to ensure that traffic safety issues shall be responded to during the construction phase of the Project, including incorporation of: (i) Safety barriers; (ii) Traffic signs; (iii) Road crossings; (iv) Speed bumps; and (v) Speed limits.
172. **Livestock and Pedestrian Crossings** shall be properly planned. Since the road section traverses residential areas, farmlands, the need to provide pedestrian and livestock crossing becomes important. Category II Road allows design speed of 120 km/hour in flat terrain (100 kph in cross-country and 60 kph in mountainous terrain) for vehicular traffic, such that crossing people (especially children) and livestock (sheep, cattle, horses, etc.) pose real danger. The design should identify spots for safe location of these crossings in coordination with the local residents. These crossings should also be dimensioned appropriately to adequately serve the purpose, considering its intended function and safety considerations. It is important to have full utility of these road features to serve the needs of the residents and the agricultural community. The crossing of people in the residential areas will be installed through every 200-250 m.
173. Bus Stops with car stop bay are proposed. With the improvement of the road, it is anticipated that bus traffic, especially by the mini-buses (marshrutka) will increase. With the new road, for safety purposes, designated bus/transport stops will have to be decided in the detailed design. This requires sufficient discussion with MoTR and the local community. Estimated numbers is 8.

## 2.2. Construction phase

174. A specific environmental section shall be included within the main Bid Documents indicating that the Contractor shall be responsible for conforming to the requirements of the EMP. As such this EMP shall be included as an annex to the Contract Bid Documents.
175. Consistent with ADB's SPS 2009, the implementation of measures prioritizes on avoidance; followed by reduction; then mitigation; and finally, if all else fails, replacement of what was impacted or compensation to the impacted parties. Under the guidance of CSC, the contractor will have to submit site-specific Environmental Management Plans (SSEMP) on the basis EMP prior to commencing operations.
176. The general SSEMP should also contain the following 12 annexes:
  - Method Statement for Construction
  - Dust Suppression Plan
  - Blasting Works Management Plan
  - Construction Noise Suppression Plan
  - Surface Water Contamination Prevention Plan
  - Borrow Pits Management Plan
  - Soil Management Plant



- Solid and Liquid Waste Management Plan
- Cultural & historical sites Management Plan
- Safety Management Plan
- Camp and Workshop Management Plan
- Material Processing Plants/Equipment and Storage Facilities Plan

177. **Method Statement of Construction** – Contractor shall submit the construction method of statement, detailing the work process, area required and duration of the process. The typical construction process will entail:

**Firstly**, the closure or restriction of existing traffic at the work sites and establishment of detour road. The provision of the new detour road will entail, stripping and clearing of vegetation, excavation, filling and leveling of the area, provision of embankment fill and necessary surfacing for the existing traffic.

**Secondly**, road widening will entail earthwork and breaking of rocks, which need to be hauled to some designated stockpiles. These works by themselves disturb the natural surroundings, and affect vegetation. It is important that measures for proper maintenance of the detour road be established to respond to traffic and community safety, control of dust, noise and emissions. Replanting of affected trees should be done as soon as possible and schemes for detour roads and soil stockpiles should favor tree preservations. Waterways should be respected and contamination should be prevented.

**Thirdly**, the bridge construction will start with the substructure such as the foundation systems and piers. This will be followed by the superstructure elements of girders, deck slab and railing. The construction of the superstructure components such as the girder and deck slab will involve installation of form works, casting of concrete and in some instances, post tensioning of tendons when necessary. The important guideline to be brought forward is the use of precast elements to minimize pouring and casting of superstructure elements over water to minimize contamination. Concrete batch plants will provide the necessary concrete for these structural elements from approved sites with operational guidelines in accordance with environmental protocols and industry standards.

**Fourthly**, demolition of existing pavement and bridges. This will involve scarifying old pavement structure, and earthworks to conform to design requirements. For the bridges, it will be breaking the structures at the existing connections and removal of deck and girder elements by use of heavy equipment. These old bridge components will be placed in designated areas, which will not impact the natural environment, impede traffic and cause safety concerns to the general public. The bridge abutments and underlying foundations will be excavated and removed to give way for replacement structures. This breaking, demolition and removal of old elements will generate considerable noise and dust and chunks of debris will drop into the existing waterway. To minimize the risk of water contamination, the demolition and construction activities will be highly advisable in the summer months.

**Fifthly**, construction of the new pavement and bridges. The pavement construction will entail embankment filling, subbase, base course and asphalt pavement layer construction. In the end the final wearing course will be laid along all throughout from the existing road, on to the approach roads, and onto the deck slab in such a manner to have smooth layer of road and bridge pavement. Embankment works will entail transport of approved fill materials from borrow pits or from cuts. The suitable materials for subbase and base course will come from quarries or borrow pits of approved properties. These pavement substructures will be engineered and compacted to desired degrees with the use of graders, and compactors in accordance with designs and specifications. The asphalt pavement layers will be provided by asphalt plants with crushed stones and rocks for the aggregate requirements. It will be the responsibility of the Contractor that asphalt plant would produce the necessary required bituminous mix in conformance to environmental requirements for asphalt plant siting and operations.

178. **Environmental specialist of CSC** inspects of Environmental Management Activity by the Contractor and submit monitoring reports quarterly and twice a year to IPIG.

179. **Committee of Grievance Redressing** shall be functioning to resolve disputes, if any, between Locals and Contractor.
180. For the Section “Balykchy (Km 0) to kilometer - post 43 (Km 43)”, the primary relevant issues consist of air and noise emissions, proper management of earthworks, waste materials and contractor's camp management practices associated with fuel and lubricant management, work camp waste disposal, and occupation health and safety practices for the contractors' workforce. The following is a discussion of highlights of the details provided in the EMP.
181. **Air quality** impacts may be expected to be generated by construction activities, such as, construction machinery exhausts, emissions from asphalt plants, dry exposed soils and material stock piles, dust from haul roads and construction activities, as well as aggregate crushers, but will be temporary. Sensitive receptor sites of Balykchy (km 00+000) and Tash-Saray (km 11 + 000) should be considered as areas of mitigation in terms of air quality, noise/vibration. Results of the periodic measurements can be referred to monitor the level of impacts and corrective/mitigation measures be performed when these parameters exceed their allowable limits.
182. To reduce emission levels of exhausted gases, together with noise and vibration as well, in general, the contractor must implement the following mitigating measures; (i) keep construction equipment in good condition (ii) prevent idling of engines by shutting off machineries not in use for more than 3 minutes (iii) prohibit use of machinery or equipment that cause excessive smoke emissions (iv) utilize low- emission type machineries and (v) install tentative noise (air pollution) barrier, if necessary.

To minimize dust, the contractor shall develop a Dust Suppression Plan and have it approved by the CSC. The Program will ensure:

- Unpaved haul routes leading to settlements are water-sprayed regularly to suppress dust.
  - Trucks hauling earth/materials be covered when transporting materials, especially through settlements.
  - Spraying water over hauling route, stock pile, borrow pit
  - Introduction of low pollutant emission equipment, attached with proper muffler attached and regular maintenance
  - Installation of barrier after monitoring if necessary
  - Air quality measurements at receptor sites (primarily those specified in the baseline measurements) are done as prescribed in the Environmental Monitoring Plan.
183. **Material Transport Route** shall be planned properly incorporating Dust Suppression Plan. Estimates from the preliminary design for the section show those 668,000 cubic meters will be the **cut** volume and 135,600 cubic meters for fill volume for the road section. Truck traffic will considerably impact local roads as well as the communities they traverse. Haul routes should be planned with CSC in coordination with IPIG and local authorities, providing sufficient maintenance to minimize dust, noise generation and disturbance to residents by restricting the hauling time between 07:00 and 18:00.
184. This paragraph deals with security measures for blasting operations. During the construction period, additional geological surveys will be conducted at the sites to avoid the use of blasting. **Blasting Work Management Plan** shall be prepared considering following:
- Blasting work can have a negative impact on water body. Possible blasting works will be on the km 40 - 41 km. At the km 40 along the road is Chu River flows into the Orto-Tokoy reservoir. Water body is polluted with soils, dust, remnants of the rocky rocks, the surface layer of soil, vegetation; these contaminants can cause siltation of the water body, and the deterioration of water quality.
- To prevent negative impacts from blasting works is necessary to protect water bodies with wooden boards (5m x 5m) mounted on poles. Use methods of drilling and blasting works (drilling small blast hole), such as the trace is small charges to prevent the explosion of a large expansion of the rock material, as well as its layered explosion in small amounts and remove.

Blasting operations in the fishery waters and river bank zones are permitted only in extreme cases where the performance of work by other means is impossible. This decision should be taken on the basis of the calculation of the dangerous explosion wave radius for fish or seismic zone actions in the explosions on the river banks. It should also include measures for screening in order to reduce the impact of the blast wave and the protection of fish fauna.

Blasting work is carried out in strict accordance with the Regulation on the procedure of consideration and issuance of industrial security authorization documents, No.301 dtd. 30.05.2013, for conduct of blasting. Before start the work, install and shield signs of the danger zone boundaries, which at the time of the explosions will be encircled with posts. The approximate radius is 450-500 m zone, adapted by calculation or Regulation. When the depth of wells is more than 10 m duplication of electric explosive network is required. Location of pits, wells, and cameras are applied to the executive plan of the explosive field. Militants (detonating cartridges) set in the charges in final form. Blasting operations are carried out in a fixed time, as well as well-audible signals (ready, fire, rebound), which all should be well known. Explosives (explosives) are stored in special warehouses protected separately from explosives (NE). Installation of shields near power lines is obligatory mitigation measure during blasting works.

During blasting works, the following substances will be emitted into the atmosphere: Inorganic dust: 70-20% SiO<sub>2</sub>, Carbon monoxide, Nitrogen (II) oxide, Nitrogen (IV) oxide. When blasting operations, emissions are considered as the burst release and are subject for calculation and counting to compare with maximum permissible emissions. Table 19 present the locations possible blasting area together with monitoring proposed.

Considering that the proposed blasting areas are located along the Chu River, it is necessary to provide the prevention of fragmentations during the blasting operations.

One way is a shelter made in the form of loose rocks laid between the shield and the surface of the exploded area.

This shelter is effective only when the vertical objects are destroyed.

The purpose of the invention is to increase the reliability of the method for preventing the scattering of pieces.

This is achieved by the fact that a cover of loose rocks is placed on the exploded surface on which the grid is previously laid.

During the blasting, a metal woven mesh detains the bulk of rock fragments, and small fragments are delayed by a layer of loading that practically does not scatter, but only swells.

The proposed shelter will reduce the fragmentation of rock fragments during the explosion by 2-3 times, and will shorten the time for conducting blasting operations 5-6 times.

**Table 189: Possible Blasting Areas**

No	Blasting sides	Monitoring
19 km +500	There is a narrowing of the road up to 12 m wide, at this point the Rockies, are likely to be carried out blasting, it is required to consider prevention of fragmentation of species during the blasting operations, as well as the development of hydraulic hammer.	Turbidity, Oil Products, pH, DO, TSS, Ec
41 km	The road narrows between mountains, it is necessary to excavate them with hydro hammer, as well as consider prevention of fragmentation of species during the blasting operations.	

In the area of road widening, horizontal wells will be drilled and explode by using explosive substance - ammonite 6 ZhV-90mm.

In order to reduce the environmental impact of blasting works, it is necessary to provide mitigation measures. The main measures are hydro-dust suppression and conduct of blasting works for breaking of rocks in small volumes stratified (top to bottom) horizontal blasting hole charges in small diameter with a preliminary pre-splitting along the contour of the explosive volume. Installation of shields near power lines is obligatory mitigation measure during blasting works.

During conduct of blasting works, information boards on blasting works at km 41-42 have to be installed on km 0 and 43. Traffic will be diverted through the Kuvaky pass by using existing

route Bishkek - Issyk-Kul and Bishkek-Naryn.

Types and time of blasting works should be agreed with the General Directorate of Biosphere Reserve.

185. **Noise and Vibration.** Construction activities are expected to generate significant but temporary noises from various construction tools such as jack hammers and other similar machines that could produce noise of about 89-90 dB(A) at about 10 m from the work site. Also, vibration due to large pavement breaking machines as well as a big percentage of trucks going in and out of the area is expected to be generated within 6-8 m from the carriageway but attenuating at 10 m. In these sensitive areas, the distance from the edge of car lane to the nearest residential houses/buildings are not less than 20m, by which distance, major emission (air pollution, noise and vibration) impacts from the construction equipment on road are significantly reduced.
186. In order to reduce the negative impacts of noise, construction work must be limited to 7:00 - 18:30 in urban areas and 06:00 – 19:00 within 500 m of settlements as well as limiting hauling traffic through settlements. Good mufflers should be installed to trucks and equipment, especially when working near sensitive receptors in addition to the measures taken for gas/dust emission from equipment/lorries. Also, noise generated must be limited to 70 dB(A) and must be strictly enforced within areas of sensitive receptors. Monitoring of noise during construction stage will be conducted according to the EMP.
187. **Surface Water Contamination Prevention Plan** – Surface Water Contamination Prevention Plan shall be prepared. Several types of waterways are found to be crossed by the project road or flows along the road. These are either man-made such as irrigation canals and flood control ditches, as well as naturally occurring rivers.
188. To mitigate negative impacts on the waterways, the following must be implemented: (i) store stockpiles of topsoil and other such materials at a safe distance from surface waters; (ii) long term stockpiles must be covered with grass or other suitable coverings; (iii) create settlement ponds where construction activities are near natural waterways.
189. Unsustainable construction practices such as improper handling and storage of construction materials (e.g., concrete, asphalt, lubricants, fuels, and solvents etc.) can pose risk of contaminating the waterways crossed by the project road. Embankments and construction materials like fill, sand and gravel can be washed out by rainwater into watercourses during downpours. Oil and grease from leaks in engines can also accumulate in surface waters and should be properly controlled. To prevent these, appropriate mitigation measures must be taken such as (i) regular maintenance of all construction equipment, (ii) chemicals and oil must be properly stored into impermeable and bounded areas away from surface waters.
190. Within the section, the critical spot is the Chu River. The Contractor should be extra careful in these spots as construction activities can directly contaminate the surface water and consequently affect the biological species in these areas. Contamination should be avoided and disturbance to biota be minimized. Water quality measurements should be done during actual periods of construction at these sites.
191. During the construction of bridges, dimensions of construction site shall be the minimum necessary. It should be placed at levels that minimize flooding as much possible. The discharge of polluted water, landfills, parking cars and the construction of temporary facilities shall be located not within the water protection zones (not less than 150m) on the banks of rivers. On construction sites should provide capacity for the collection of sewage and garbage.
192. The roads within the water protection zones should include the collection of mud water from the roadway surface with its subsequent treatment or sewage to eliminate the pollution of water sources. The quality of discharges into water bodies must meet the established requirements. In the water protection zones of rivers. It prohibits contamination of the earth surface, including the garbage dump, waste production, as well as parking, cleaning and repair of motor vehicles and road construction machinery, fueling. All works in water protection zone must be carried out based of permission from local authorities.

193. The project documentation should include the restoration work after the construction of the bridge: the removal of the bed of the river banks, backfilled during the construction of supporting structures; cleaning of the river bed and the flood plain from cluttering their objects, extracting and hauling piles of scaffolding and temporary supports; dismantling of temporary facilities on the construction site and land reclamation, including borrow area and access roads.
194. **Borrow Areas** - It is noted to open a new borrow pit inside Issyk-Kul Biosphere Reserve is not allowed. Nevertheless, when planning to open a new borrow site outside the reserve, the contractor, within the purview of this IEE, should have the extraction permit, approval of a development plan, including borrow pit restoration plan. The Contractor shall obtain all required permits for use of borrow pits and disposal areas from local authorities, get approval from regional departments of SAEPF under the Government of KR. In addition, the Contractor, in conjunction with the Consultant, shall consult the General Directorate of the Issyk-Kul Biosphere Territory and obtain their consent. Prepare a "Borrow Pits Development and Restoration Plan" and submit all necessary documents to MOTR of KR to obtain a license to extract aggregate materials from the State Agency for Geology and Mineral Resources. These requirements do not apply to existing borrow areas or aggregated facilities. When using private borrow pit, all permits (licenses, approvals from local authorities, regional departments of SAEPF under the Government of KR, etc.) are responsibility of the owner of borrow pit which should be indicated in the agreements signed between the contractor and the borrow pit owner. The contractor will need to prepare a site development plan which must provide the following information:
- capacity and operation hours of a borrow pit;
  - development and extraction sequence of borrow pit;
  - technique and mechanisms for stripping and excavation operations;
  - operation and time schedule for borrow pit development;
  - extraction method and transport plan, including route(s);
  - safety rules and hours of operation;
  - expected quality of extracted materials;
  - topsoil storage/protection and environment protection steps; and,
  - rehabilitation of disturbed lands when site is decommissioned.
  - calculation of mobile sources' emission charge.
195. **Soil Management Plan** shall be prepared, detailing measures to be undertaken to minimize effects of wind and water erosion on stockpiles, measures to minimize loss of fertility of topsoil, timeframes, haul routes and disposal site. Excavation or cuts of soil materials along will require temporary or permanent areas for deposition. This should be done with proper arrangement with the land owner on which the excess soil will have to be deposited. Permanent spoil soil deposit areas should be coordinated with local officials and proper permit obtained accordingly. During site clearing and stripping, topsoil storage area should also be identified. Mostly the roadside corridor is frequently used as temporary storage areas. These stockpile soil should be protected against erosion. This will be done by, for example, seeding the stockpiles with fast growing shallow root grasses. To ensure proper management, the contractor will submit a soil management checklist prior to commencing operation. This checklist will include a simple listing of measures for minimizing water and wind erosion losses. As long as topsoil stockpiles remain unused, the seeded grass cover will remain in place.
196. **Solid and Liquid Management Plan** - For treatment of solid construction waste such as hacked concrete debris and liquid waste such as excavated mud, the Contractor shall establish solid and liquid wastes management plan covering provision of garbage bins, regular collection and disposal in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tires, etc.) consistent with appropriate local and national regulations.
197. **Cultural & Historical Site Management Plan** shall be prepared.
- During construction, the contractor must apply in writing to the MoCIT KR and local

authorities' identifying the protection zones around these sites. Also, Contractor should employ techniques during construction works (vibration) with minimal or no impact to any cultural, historical or archeological structures along the road. Physical cordon around identified sites should be installed to minimize construction impact and alert workers/people from disturbing cultural and historical sites.

The Contractor should issue strict instructions to his workers against disturbance at this site. In case of any chance finds or suspected artifacts discovered during construction, the Contractor should immediately notify the Engineer (CSC) for further protective actions.

In accordance with the Law "On protection and use of historical and cultural heritage" if in the construction period cultural and historical monuments will found, Contractor must stop all construction works and report the findings to the local executive authorities or any other competent organization (Institute of History and Cultural Heritage, National Academy of Sciences; Department of History, Kyrgyz National University after Balasagyn), MoCIT KR.

198. Fauna and Flora – Contractor shall follow:

To establish additional signs for km29 with the designation of the beginning of the biosphere territory, and also within the Balykchy Section from km 0 to km 43, to establish signs of a ban on hunting (restriction for hunting to capricorns and quails, etc.).

A maximum fill up of the tree stem area of 30 cm can be accepted. Fill up material in the tree stem area has to be organic soil.

A filling up of more than 30 cm will damage the tree. In this case cutting can't be prevented and a new tree is to be planted as a compensation measure at the respective location within the existing RoW.

Species to be planted are walnuts, maple ash tree, elm tree, white poplars, white willow, white acacia.

Plantings shall be conducted after technical works have been completed. Planting time shall be restricted to spring (March till April) and/or autumn (September till October).

Implementation of a temporary vegetation protection fence during construction activities.

Training of workers is required on the importance of the biosphere territory "Issyk-Kul", on prohibition and responsibility for poaching, preventive measures for biodiversity conservation in the given territory. Include in the monitoring plan monitoring of species that are on the verge of extinction

199. **Safety Plan** for workers and local people. The Contractor shall develop a Safety Management Plan including:

- Traffic safety program for especially around the sensitive receptors by installing necessary safety measures specified in the design or in the Technical Specifications to ensure that community and traffic safety issues during the construction phase of the Project, including incorporation of: (i) Safety barriers; (ii) Traffic signs; (iii) Road crossings; (iv) Speed bumps; (v) Speed limits; and Flagman when necessary. Social impacts along the vicinity of the road during construction includes, such as impairment of the usual access, community health and safety concerns, plus socio-economic conflicts. If any traffic re-routing needs to be done, sufficient advisory and notification should be provided to the people and motorists. Dust impacts and noise nuisances should be minimized during construction. Protective barriers and fencing should be provided to prevent people and animals from loitering at the project site for safety purposes. During the construction phase, it may be inevitable that existing traffic will be disrupted and local accessibility will be impaired, which can cause problems with the local community. To mitigate this situation the Contractor should: (1) Submit a traffic management plan to local traffic authorities prior to mobilization; (2) Provide information to the public about the scope and schedule of construction activities and expected disruptions and access restrictions; (3) Allow for adequate traffic flow around construction areas; (4) Provide adequate signalization, appropriate lighting, well-

designed traffic safety signs, barriers and flag persons for traffic control; and (5) Provide temporary access where accessibility is temporarily restricted due to civil works.

- Occupational Safety Program. For safety protection of workers and adjacent communities, the following shall be provided: (i) Adequate health care facilities (including first aid facilities) within construction sites with a nurse shall be stationed while a doctor who shall visit regularly and when necessary.; (ii) Training of all construction workers in basic sanitation and health care issues, general health and safety matters, and on the specific hazards of their work; (iii) Personal protection equipment for workers, such as safety boots, helmets, gloves, protective clothing, goggles, and ear protection in accordance with KR legislation; (iv) Clean drinking water to all workers; (v) Adequate protection to the general public, including safety barriers and marking of hazardous areas; (vi) Safe access across the construction site to people whose settlements and access are temporarily severed by road construction; (vii) Adequate drainage throughout the camps so that stagnant water bodies and puddles do not form; (viii) Sanitary latrines and garbage bins in construction site, which will be cleared when reaching capacity by the contractors to prevent outbreak of diseases.
- During blasting, Contractor shall properly control the traffic so that no injury or death is caused.

200. **Maintenance of Access** during Construction – Construction of bridges and culverts over water necessitates detour roads to be temporarily arranged. In so doing, normal traffic will be impaired and cause access issues to motorists. In addition, these detour roads need to be maintained for connectivity and safety purposes. Traffic plan incorporating these detour roads should be formulated by the contractor and shall be included in Safety Management Plan.

201. **Asphalt, Concrete and Crushing Plant Pollution** -Material Processing Plants and Storage Facilities Plan shall be prepared.

During the selection of a site for bitumen plant, concrete plant, stone crusher equipment, which emit pollutants, noise and transmits vibrations, the contractor will need to comply with SanPiN 2.2.1/2.1.1 and SanPiN 2.2.1/2.1.1.006-03, and establish a specific buffer zone around any such facility. In the KR this is referred to as a sanitary-hygienic zone, and is a mandatory element of any facility that affects habitats and human health. The sanitary-protection zone (SPZ) separates the area of an industrial site from residential areas, landscape and recreation areas, parks, and health resorts with mandatory demarcation of boundaries by using specialized information signs.

The boundaries are as follows:

Class II – SPZ 500m.

- ✓ Production of asphalt-concrete at fixed plants.
- ✓ Production of asphalt-concrete at mobile plants.

Class III – SPZ 300m.

- ✓ Production of crushed stone, gravel and sand, milling of quartz sand.

Class III – SPZ 300m.

- ✓ Borrow pits of gravel, sand, and clay.
- ✓ Bitumen plants

Class IV – SPZ 100m.

- ✓ Concrete solution plants.

202. **Camp and Workshop Management Plan.** Garbage and sewage and solid and liquid waste from equipment maintenance can be serious pollutants and disease vectors. The contractor will therefore need to practice good worksite and construction camp management.

203. Where feasible, the contractor will arrange the temporary integration of waste collection from work sites into existing waste collection systems and disposal facilities of nearby communities. This shall be taken into consideration when deciding the place for the camp. The contractor will arrange for extra payment if community services are to be used.

204. It is required to provide an Environmental and Safety Officer (ESO), under which a Environmental Officer (EO) and a Safety Officer (SO) also be provided. Their roles are to provide environmental and safety training to the employees and surrounding residents according to the requirements of the individual work place. Prior to the commencement of works, the work site personnel shall be instructed about safety rules for the handling and storage of hazardous substances (fuel, oil, lubricants, bitumen, paint etc.) and also the cleaning of the equipment. In preparation of this the contractor shall establish a short list of materials to be used (by quality and quantity) and provide a rough concept explaining the training / briefing that shall be provided for the construction personnel. The contractor shall provide information to workers, encouraging changes in individual's personal behavior and encouraging the use of preventive measures. The goal of the information is to reduce the risk of HIV / STD transmission among construction workers, camp support staff and local communities.

Inspections by the CSC environmental specialist will take place monthly and any no compliance issues such as strewn garbage, open waste pits, oil soaked ground and unsanitary washing facilities for workers, the contractor will be subject to an immediate fine and a stop-work order will be issued if cleanup is not underway within 12 hours of detection. If the contractor does not act, the CSC will retain an outside firm to clean up the area and this amount will be deducted from the contract total.

205. **Utilization of Waste Asphalt-Concrete Temporary Storage and Processing Areas** - Old asphalt pavement will be removed and be replaced in the new pavement. Storage or stockpile areas of old asphalt should be situated where they pose no risk of contamination to the environment. In coordination with local authorities, location of old asphalt stockpile areas will be identified, with a minimal distance of 500m from any settlement. Preferably, storage areas should be in state-owned land. If private lands will be used, a negotiated rent on the property should be established with the land owner. All temporary asphalt pavement storage and processing areas shall be agreed upon with the regional departments of SAEPF under the Government of KR. Old asphalt should be trucked away in blocks and stockpiles should be no higher than 2.5 m.

Using old asphalt – The hacked old asphalt waste shall be transferred to Local RMU of MoTR tentatively. Then the old asphalt is used to strengthen the surface of existing second road in the villages. The top coating of the shoulders with the addition of gravel-sand mixture with 15 cm thickness is recommended.

206. At the time of culvert construction, consultation with the users of irrigation system.

Disturbance of agricultural lands can occur when trucks and equipment roll over them during construction activities. During construction, it can occur that equipment and trucks may maneuver over agricultural lands and, in doing so, these areas may be excessively compacted and render the soil unfit for agriculture. The Contractor should prevent these unnecessary disturbances on agricultural lands.

When passing over bridge/culvert, axis load of vehicles shall be ensured, not to exceed endurable load of the structure.

### **2.3. Operations and Maintenance phase**

207. After the Handing-Over to the Client of the given road section, a one-year defects liability period ensues, in which the Contractor will still be responsible in remedying any deficiency or flaws in the overall works. After which the Operation and Maintenance Phase follow, in which the Client takes over with full responsibility for the operations and maintenance of the road. Impacts on the environment shall be on the usage of the road by vehicular traffic and subsequent maintenance activities to retain the service level of the infrastructure.
208. The projected service life of the road is 20 years and over this operations period, the impacts related to traffic on the environment are rather viewed as cumulative on account of the functions of the road components and can be in conjunction with other activities. Time-wise these impacts can also be long-term as they may manifest after construction and continue to



persist for the entire usage and operation of the road. The perceived impacts and corresponding mitigation measures during the operation of the road will be on:

209. **Air Quality-** After computations, the maximum traffic can be around 2,144 vehicles per day in 2030 caused by such number of vehicles are negligible as shown in Table 18.. In future will come the elimination of older more polluting vehicles from the fleet, fewer stops and starts due to better road conditions and traffic management, better engine technology and vastly more fuel efficient vehicles. Further, KR will receive better refined fuels with lower emission factors per liter used.
210. A high graded road, properly signed, with good lane markings and careful intersection management, will allow the traffic to move more smoothly thus reducing the high emission due to frequent acceleration and deceleration. Road safety features such as, streetlights, traffic lights pedestrian crossings, livestock crossings and other visual means to reduce accidents will be installed along the road.
211. **Noise and Vibration** - In operation period, level of noise and vibration impact shall depend on road traffic intensity, road pavement quality and distance to the receptors. Traffic noise estimated with driving velocity of 120 km/h in the year 2030 is far exceeding the allowable limit. To prevent this noise pollution, the driving speed around residential areas shall be suppressed to 70km/h or less (Figure 15).
212. It may be required to install noise barriers, along the noisiest stretches, based on further noise testing during the operating period and interview to local residents. An option could be the construction of panel wall with the minimum height of 3m if the traffic noise level is unendurable for them. The schedule of noise monitoring will be conducted 2 times for a six-month period during year 1 of the operating period, if residents complain. The resulting data will be used to determine the best noise mitigation measure.
213. **Soils and erosion control.** If the contractor properly implements the measures defined in the EMP for the construction period and CSC's environmental specialist completes a post-construction safeguards audit of to confirm all mitigative measures were implemented and remain operational, soils and erosion issues associated with the road should be negligible. Confirming that topsoil and planting were put in place as the work was being completed (not after the construction is completed) the tree planting was done and trees are healthy and being maintained will be essential.
214. Culverts need to be inspected to ensure that all debris and construction materials have been removed and any stream diversion structures have been completely removed. To that end, the CSC and IPIG will prepare a culvert inventory that will provide a photo of each culvert and its condition during each inspection, which should be annually and submitted to MoTR of KR. Two photos will be required, one at the upstream and a second at downstream end of each culvert.
215. MoTR will assign that this work will be entrusted to the contractor during the one-year warranty period, after road becomes fully operational; and after that period, taken over by MoTR's maintenance unit.
216. **Ecological Environment.** The local ecosystem might have been slightly altered by the cutting of the trees and therefore the replanting and tree maintenance program, until the trees are at least 9-10 years old, will be observed to reestablishing the pre-cutting conditions of roadside shade during the summer and windbreaks during the winter. Estimated number of trees for cut is 30, the planned number of trees for planting is 60.  
  
Given that trees not only provide shade in the summer and serve as windbreaks in the winter, but also recycle thousands of tons of CO<sub>2</sub> during photosynthesis.
217. It is necessary to monitor and control of the planted trees, both during construction and during operation. Monitoring of flora and fauna is conducted by the General Directorate of Biosphere territory of Issyk-Kul in the framework of their activities.
218. **Livestock and Pedestrian Crossings**– Since the road section traverses residential areas, farmlands and pasture grounds, the need to provide pedestrian and livestock crossing

becomes important. Category II Road allows design speed of 120 km/hour in flat terrain (100kph in cross-country and 60 kph in mountainous terrain) for vehicular traffic, such that crossing people (especially children) and livestock (sheep, cattle, horses, etc.) pose real danger. Also on the road need to install the road sign indicating the places of transition of people and livestock. The crossing of people in the residential areas will be installed through every 200-250 m.

#### **2.4. Climate Change Impacts on the Project Road**

219. In the F/S IEE, a Climate Change Study of the Project Road was included as a separate sector. This study focused on the following impacts to the project road:
  - River floods and water logging in spring, due to more intense rainfall. This will mainly affect lower altitude areas susceptible to flooding;
  - Heat stress in the summer, especially at lower altitudes;
  - Mudslides related to more intense rainfall in the spring at medium altitudes (and in a lesser degree also high altitudes);
  - Flush floods in the summer especially at higher altitudes, related to higher temperatures together with the increase in winter, spring and autumn rainfall (snow at higher altitudes).Possible mitigation measures are just taken precaution and immediate announcement of disasters to the residents and drivers.
220. The study made, reference to the climate simulations done by the International Fund for Agricultural Development (IFAD) for Kyrgyzstan, indicated that the “Balykchy (Km 0) to kilometer - post 43 (Km 43)” located at an area with low or very low vulnerability risk as compared with the north of Chu Oblast and other high altitude areas. Moreover, as per IFAD, the vulnerabilities identified are mainly related to increased heat stress at the project sections with low altitudes and mudslides at medium altitudes. Very limited information on the occurrence of extreme rainfall was found, but with relation to emergency situations, there is a tendency of reduction of rainstorm frequencies.
221. The hazards related to flooding have been studied using UNEP’s Global Risk Data Platform which entails hazards modeling was developed by the World Meteorological Organization (WMO) and the United Nations Education and Scientific Cultural Organization (UNESCO). As per data in the Platform, the flood hazard will increase along major rivers in the Central Asia region, but Kyrgyzstan and the project area is less influenced by this than the neighboring countries. The project area is located in areas of low risk, whereas the risk increases at higher altitudes.
222. The values of seasonal temperature changes by year 2100 anticipate a greater increase of summer temperature in comparison to other seasons, and the minimum increase is predicted for the winter period. On the positive side, warmer winters due to climate change can alleviate the clearing snow; which would mean less maintenance cost during the winter months.

## **F. Analysis of Alternatives**

223. In this section were considered two alternatives:

1. Zero option – the «Inaction»/ do nothing alternative
2. The road reconstruction project

### **1. Zero option – the «Inaction»/ do nothing alternative**

224. Within the framework of ADB's SPS 2009, an important consideration the alternative "Zero option" is being devoted on. The alternative "Zero option" presents case scenario in which the project is not to be done at all. By comparative evaluation, it can be inferred whether the project is necessary at all or provide some insights on how to properly proceed should the project be fully implemented.
225. Atmospheric air. The existing road surface does not meet the requirements of III road category. In some places, there is no "cold asphalt" road pavement. Due to unevenness of the road, vehicle engines run unevenly by releasing large amount of exhaust gases. Dust formation is most likely to happen on places where there is gravel surface, which also affects atmosphere.
226. Noise and vibration. Noise and vibration are a major factor of concern people day and night. Lack of coverage of the road, spreading the sound waves at great distances from the road creating a high noise and vibration impact on the population at night and in the daytime. The most sensitive recipients are residents of nearby houses to the road and other private facilities.
227. Surface water. In places, where the road crosses channels and bridges, may observe destruction of given structures and erosion of banks. In case of accidental destruction of some culverts and erosion of banks, we may observe pollution of water body. Runoff from the road surface flows to channel and river by causing water bodies' pollution with oil products and oils. This impact will be expressed in possible soil contamination with oil products, oils and waste.
228. Soil. Impact on soil is expressed in soil disturbance due to destruction of roadbed and going of vehicles beyond the right of way on nearby areas. Erosion due to concentration of water flows by artificial structures, ditches and channels. Soil and water might be contaminated by oils, gasoline of vehicles.
229. Flora and fauna. Impact on flora and fauna will be negligible, as the road is existing road and has already caused anthropogenic impact.
230. LARP and social issues. Economic relocation and resettlement is not applicable. Social aspect is expressed in violation of communication routes of local residents, increase in time spent on the road to places of work and leisure. Poor traffic conditions for agricultural machinery, animal-drawn transport, cyclists and cattle driving. High accident risk might be created on the road and intersections with other roads. Moving vehicle causes vibration of buildings and structures. Dust pollution and gas contamination.
231. Safety. The road is not equipped with traffic indicators, signs, markings, which create prerequisites for accidents among population and vehicles crash. Violation of speed limits results in collisions and runs over people, animals and vehicles. There is no established road crossing places for people and cattle
232. If zero option is implemented, the negative side is increased noise and vibration, lack of proper road pavement, negative social aspect, and impossibility to develop the region's economy.

### **2. Alternative - the road reconstruction**

233. Reconstruction existing road Balykchy (Km 0) to kilometer - post 43 (Km 43).
234. This Alternative is considering the reconstruction existing road of the section Balykchy (Km 0) to kilometer - post 43 (Km 43). The Road section from Balykchy (Km 0) to kilometer - post 43 will be reconstructed and the total distance will be 43 km. Main specifications of the projected road are given in Section C the Project description.

- 235. During the pre-construction stage, reconstruction of the road will not have any environmental and social impacts. This period, the work will be associated with the design and proper planning of works, as well as informing the public and other stakeholders about the proposed work.
- 236. During the construction period, atmosphere air will be affected by vehicles, operation of road equipment and machinery, excavation and undermining of mountain areas' soil, sandy gravel, crushed stone and operation of asphalt mixing plant. The impact will be provided by pollutant emissions from the operation of machinery and mechanisms, the formation of dust.
- 237. The impact will be exerted on the water bodies (irrigation channels, Chu River) from operation of the machinery, construction camps, and possible contamination of water by oil and oil products, soil, residues of construction and household waste products.
- 238. Impact on soil and land resources expressed by extraction of soil, ground, temporary diversion of land, and contamination by oil products, construction and household waste, disturbance of topsoil by its misuse and stockpiling.
- 239. The impact on the historical and cultural heritage will be expressed in the physical impact (vibration and possible infringement of workers) to the cemetery and burial ground which located on the 35-50m from the road.
- 240. During the operation, the main impact will be on air, physical factors as noise and vibration will have an impact, especially in the settlement and industrial zone.
- 241. More detailed analysis of the alternatives of the environmental and social impacts is given in Section E the Environmental Impacts and Mitigation Measures.
- 242. Given that the reconstruction of the road will be carried out on the existing road and the environment has formed anthropogenic ecosystem, it can be concluded that the impact of the projected road on the environment will be insignificant, but in social terms the impact will be positive.

## **G. Information Disclosure, Consultation, and Participation**

243. Formal and informal public consultations were done for the project during the study period. During the site visits some informal discussions were done with the villagers and some village heads as field information were being gathered. The IPIG organized a formal public consultation was arranged with the district heads to invite people of affected villages to present and discuss with them environmental and social issues relevant to the rehabilitation of the road.

### **1. Public Consultations and Participation**

244. For Balykchy (Km 0) to kilometer-post 43 (Km 43), in accordance with ADB's Public Communications Policy (2011) and SPS (2009), Public Consultation meeting on the environmental aspects was undertaken on 17 March 2016 in Balykchy (see Photo below). This was organized by the IPIG-MoTR through official communication to the local leaders inviting stakeholders in the surrounding villages.
245. During the public consultation, the Consultant (Kocks Consult, GmbH), prepared PowerPoint presentation regarding the technical features of the project and explained the potential environmental and social impacts with corresponding mitigation measures. This event was organized by IPIG-MoTR representatives. The representatives of the MoTR-IPIG answered questions and clarify any issues that were raised. In addition, the participants also were provided a sheet of paper on which the can write their questions and comments. Printed hand-outs of the presentation were prepared and distributed to the people for their information and as a way of disseminating the environmental concerns of the project to the general public. Figure 19 is a photo of the public consultation.



**Figure 19: Public Consultation in Balykchy (17 March 2016)**

246. The questions raised verbally during the forum were responded right away. As mentioned above, the people who attended were provided with a sheet of paper on which to write their questions and comments on the project. The recorded questions and corresponding responses by the IPIG-MoTR were captured in a video with the transcript shown in Annexes C and D. The verbal and written comments and questions that were raised were compiled and presented as follows and in Table 20:
247. Comments/Recommendations:
- Contractor needs to arrange sidewalks on both sides of the Naryn highway including lighting, lay sleeve pipes to be used for utility purposes later.
  - Asphalt concrete mixing plant should be arranged far from the territory of the "Issyk-Kul" Biosphere Zone.
  - Contractor needs to rehabilitate the bridge over the channel feeding water to Tash-Sarai village without interrupting water supply process.

- We shall highly appreciate if you keep on providing information about the project implementation process.
- Removed poles of power transmission lines should be recovered.
- We ask you to repair 3 km road connecting the Orto-Tokoy Village with the road to be rehabilitated.
- We ask you to remove the rock on the way to Orto-Tokoy Village
- As we have neither schools, nor kindergartens, we please you to repair the road going to Orto-Tokoy Village from the highway to be rehabilitated.
- As Orto-Tokoy Village belongs to the Balykchy authority and is located 18 km away from Balykchy town, we please you to repair 3 km road connecting the Orto-Tokoy Village with the road to be rehabilitated.
- This is good project, I wish you every success in you work
- The Contractor needs to arrange elevated bridge for railway on the intersection of railway and highway to be rehabilitated. Install at least 4 traffic lights around that place
- Please provide for traffic lights within the city area.

**Table 20: Questions of Participants, 17.03.2016. PC Meeting Summary**

Questions	Answers
Where will asphalt concrete mixing plant be located?	They will be located far from settlement areas. This issue will be known when the Contractor will be identified.
Type and place of origin of planting material	This issue will be identified on the next stage. Preliminary estimated it will be instead places existing trees and most of types are Populous alba (30%), Elm (70%), and deciduous shrubs Lohan in the villages.
Is the Contractor going to plant new trees instead of cut?	Yes, we have preliminary estimate.
Will the Contractor install lighting inside the Tash-Sarai village?	Electric lighting will be installed inside villages. However, make sure that you have specified that in your written requests so that designers could study it.
Will the Contractor repair at least 25 meters of secondary roads connected with the highway to be rehabilitated?	About 15-25 m of secondary roads inside villages will be asphalt coated.
Who will pay for removal of PTL poles and how private properties of rural people to be moved during the construction of road be compensated?	That matter has been provided for in the Project. Owners of structures to be removed because of road will be compensated. Specialists will identify the cost of the structure, the Government shall receive funds and distribute to owners of destroyed/removed structures.
Will street lighting be installed?	Actually, traffic lights shall be installed according to standards and number of people to cross the street. If there are few people, the Contractor shall rather arrange pedestrian crossing (zebra). As for places near schools, where children cross the street, the Contractor shall install traffic lights.

List of attendants from authorities, central government: and consultant

IPIG /MoTR: Asylbek Abdygulov safeguard specialist;

Ruslan Satybaldiev: Regional Project coordinator,

Kocks Consult: Sam Sapuay: International safeguard consultant;

Lola Shatirishvili, resettlement specialist

List of attendants from local government/ residents , together with their signatures is presented in Appendix C.

248. Comments were minor with the following recommendations - the need for sidewalks, sleeve pipes, asphalt plant to be away from Bio-sphere zone, need for bridge rehabilitation, on using poles that will be removed because of road widening, repair of road to Orto-Tokoy, rock removal, fly-over bridge over the railway (or traffic lights) and additional traffic lights in the city (Balykchy). The questions on the other hand were regarding road dimensions, location of asphalt plant, planting materials to be used, refueling and repair of vehicles, replanting of trees to be cut down, planned repair for secondary roads, resettlement issues, installation of street lighting and road ditches
249. Several of the comments were already incorporated in this IEE/EMP such as concerns on damage to infrastructure and reconstruction of utilities. On the impact to infrastructure, provisions in the EMP were included to undertake good planning to enable infrastructure service not to be disrupted.
250. In order to inform a larger number of population of the villages along the road on the environmental and social issues of the project, IPIG/MoTR KR sent information letters with the results of the conclusions of IEEs to Rayon authorities, heads of village municipalities, and village elders for greater public awareness on possible types of environmental and social

impacts during implementation of the road reconstruction project. This information letter is attached in Annex K.

251. In order to more effectively engage local population in the process of informing on social and environmental impacts of the project, additional public consultation will be required. It is necessary to hold a public consultation at the stage of detailed design for a representative stakeholder interaction.
252. The organization of public consultation is necessary to fix the participants, by registration of the participants of the sheet indicating your name, position, address and telephone number. Provide information for feedback to direct suggestions and comments.
253. On March 27, 2017, a meeting was held with the Directorate of the Biosphere Territory of Issyk-Kul (Appendix L). As a result of the meeting, proposals were made by the Directorate on the installation of information signs on the project site in the beginning and the end of the biosphere territory (included in the EMP), and an agreement was reached on joint cooperation at the project implementation stage (joint monitoring, information exchange, coordination with the management of plots under borrow areas, dumps located within the biosphere territory, etc.). IBRM comments were incorporated in EMP of this IEE. The draft IEE was provided to the Directorate of the Biosphere Territory, for review. There were no any additional comments from the Directorate on revised draft of IEE.

## **2. Information Disclosure**

254. As soon as the IEE will be approved by SAEPF and ADB endorses the IEE it is made available as information to the public, both in English and in Russian languages.
255. The procedure for public consultation in Kyrgyz Republic includes the following steps:
  - 1) public notification on public discussions;
  - 2) providing public access to the EIA documentation from the project initiator and / or in other accessible locations (local authorities, the territorial bodies of environmental protection), as well as disclosure of the EIA report on the website of the proponent (if website exists);
  - 3) the general public familiarizes with the EIA documentation;
  - 4) in the case of public interest:
    - Public notice on the date and place of the meeting to discuss the EIA documentation;
    - Collection and analysis of comments and suggestions, summarizing the results of public discussion of the EIA documentation.
256. The Russian Version of the IEE will be available in the IPIG-MoTR office and copies shall be made available to the people through the Ayil Okmotu offices along the project road. The IEE shall also be disclosed to a wider audience via the ADB website and in KGZ at the MoTR website. During the project implementation, periodic environmental monitoring reports shall be submitted by Implementing/Executing Agencies and correspondingly also be uploaded in the ADB website.
257. Should additional information be required at any time about the project, the public may visit the IPIG-MoTR or interact with the future construction supervision consultant who will be selected for the project. On-site consultations will be held for clarifications and provision of necessary information to the public and the stakeholders on as need basis.

## **H. Grievance Redress Mechanism**

### **1. Objectives**

258. The Grievance Redress Mechanism (GRM) is a process through which the affected people need a trusted way to voice and resolve concerns about the project and the project also finds an effective way to address affected people's concerns. In this project, the grievance mechanism will be in place by which the affected people will be fully informed of their rights and procedures for addressing complaints whether verbally or in writing during consultation, survey, time of compensation and implementation of the project. Care will always be taken to prevent grievances rather than going through long redress process.
259. The GRM will cover issues related to social, environmental and other safeguard issues under ADB safeguard covenants and Kyrgyz Law.

### **2. Grievance Redress Group (GRG)**

260. The GRG will be established for the duration of project implementation. The GRG is tasked with all activities needed to discuss a grievance, assess its validity, assess the scope of eventual impacts, decide eventual compensation needed and instruct/facilitate the functioning of the Grievance redress mechanism.

#### **2.1. Functioning of the GRG within the Grievance Redress Mechanism**

261. The Grievance redress mechanism (GRM) involves the following 2 stages appeals:

##### **Stage 1, Local (Village) Level**

- The grievances will first be lodged at the level of the complainant's village community. The complainant will report his case to the Local Point of Contact (LPC) The LPC will trigger the action of the Grievance Redress Group (GRG) which will assess the situation and seek a solution through consultation with complainants, local Roads Maintenance Unit (RMU) the oblast Ombudsman, and the selected AP representative.

##### **Stage 2, Central Level**

- In case within additional 15 days the grievance is still not resolved at local level the complainant will further raise the issue to MoTR's headquarters in Bishkek again with the support of the LPC, AP representatives, and the oblast Ombudsman. The GRG will decide on the eligibility and on the complaint case and prepare the resolution, subject to IPIG/MoTR consent.
262. GRM proceedings will entail one or more meetings for each complain and may require field investigations by specific technical or valuation experts. Grievance cases shared by more than one complainant may be held together as a single case.
263. For deliberations at the local level, the meetings will be held in the village of the complainant. For appeals at central level, the meetings will be carried out at in MoTR office in Bishkek with field trips of GRG members to the village of the complainant.

#### **2.2. Composition of GRG**

264. GRG will be established by the order of MoTR. The GRG is composed at different levels of appeal by the following individuals/officers.

##### **Local level GRG**

265. Local level GRG will be established at each Ayil-Okmotu along the project roads with the provision of members of composition as shown in Table 21:



**Table 21: Composition of Local Level GRG**

GRG Member	Position held
Head of Ayil-Okmotu	Chairman
Representative of RMU	Member
Female and Male APs	Members (2)
Local Point of Contact	Member
Ombudsman of the Oblast	Observer
Consultant	Invited Expert

**Central level GRG**

266. The central level GRG will be represented by 5-7 members of the composition as shown Table 22.

**Table 22: Composition of Central Level GRG**

GRG Member	Position held
Head of IPIG of MoTR	Chairman
Project Coordinator at IPIG	Member
IPIG safeguards unit representative	Member
Representative of the RMU	Member
Local Point of Contact	Liaison between Local & Central GRG
Ombudsman of the Oblast	Observer
Representatives of APs (Male & Female)	Additional Observers

At each level of appeal, the GRG will be assisted as needed by the professional capacity needed to solve each specific case. This will include among others:

- Representatives of State Rayon Administration
- Representatives of the Rayon Branch of the State Agency for Architecture and Construction
- State Registration Services of the Rayon
- Ministry of Agricultural
- State Agency for Environment and Forestry
- Ministry of State Property
- Ministry of Emergency
- Technical expertise from professional engineers, and Consultants with relevant experience in environmental safeguards.

**2.3. Duties of GRG Members****Local Point of Contact**

267. Once AP files a complaint, the LPC is to undertake and complete the following tasks:
- screen the complaint for eligibility and, if found eligible register it the Complaints Log;
  - draft a complaint memo to be signed by the complainant, indicating the name of complainant, date and place the case of complaint occurred, apply the date and place of complaint submission, and attach supporting documents, as necessary;
  - send the complaint memo to all members of GRG, agree the date of GRG meeting;
  - request the rural administration authorities to organize the meeting;
  - facilitate the GRG meeting by providing a storyline for the complaint and provide factual details and relevant documents obtained;
  - communicate request and queries of the complaints to the members of GRG (on central level to GRG/IPIG/ADB);
  - maintain the records of the meetings and communications between GRG and complainants
  - ensure administrative and organizational support to GRG members;
  - raise awareness of project stakeholders, including CBOs, NGOs AHs and local authorities on the GRM, its functions and objectives.
  - liaise between local and central GRGs to convey the information of the case of complaint that was not resolved on local level and became the case to be reviewed on a Central Level.

**Chairman of GRG / Head of Ayil-Okmotu**

268. Once the GRG Chairman is informed about the meeting date and schedule he/she is responsible to:

- review the complaint(s) and supporting materials if any ahead of the GRG meeting;
- manage to obtain any additional information prior to GRG meeting date;
- involve relevant task expert if such need is obvious after review of the complaint(s);
- ensure members attendance and chair GRG meeting;
- ensure simple complaints (like notification of when construction starts or a copy of the entitlement brochure etc.) are handled /resolved at the local level during the meeting;
- ensure that records (of each meeting, communication between GRG and complainant(s)) is accurately recorder by assigned member (Meeting Secretary) and saved in the GRG files;
- convey requests and enquiries of the complainants to GRG members on Central Level if not resolved on Local Level.

### **RMU Representative**

269. Once notified of a complaint and summoned by the LPC to a grievance meeting the RMU representative will:

- Review all relevant recording of complaints and submitted documents of proof;
- Participate to all grievance meetings, provide opinions and analysis, take minutes of the discussions (Secretary of the Meeting);
- Accompany eventual assessment/valuation specialists in the field;
- Ensure that claims from damages due to construction works are reviewed by the RMU and technical experts and assess the damages /losses incurred;
- Based on the position reports of GRG members and on his/her understanding of the case prepare the final grievance report and recommendations to be sent to complainant, other members of the GRG and if needed to IPIG as well. The summary report should determine, whether the case is:
  - ✓ solved without further action; or
  - ✓ solvable but requires compensation or other action; or
  - ✓ not resolved and requires pending actions, such as forwarding the complaint for review on the higher-Central Level, to the Court, or to investigation to prosecutor's office.
- If the complaint is considered valid and the needed compensation/action is to be approved by IPIG the case is forwarded to GRG on Central Level with the request to proceed the review and ensure execution of the redress action; and
- When the complaint remains unresolved by Local Level GRG, and a complainant offered to lodge claim on the Central Level agree to act so, RMU representative coordinates with LPC and GRG Chairman to assists the complainant in lodging the complaint at a higher appeal level;
- In parallel inform IPIG/MoTR and proceed with the organization of the central level appeal meeting.

### **Representatives of the APs**

270. Two representatives of the APs, male and female persons from the affected community will participate in all GRG meetings to:

- act as the full right member of GRG;
- provide relevant information related to the submitted complaints; and
- provide other GRG members as relevant with a position note to be reflected in the final meeting report.

### **Invited Consultant /Field expert**

271. Once notified of Meeting time and location the Consultant will:

- Review all relevant recording of complaints and submitted documents of proof;
- If feasible visit the place of complaint to visually observe the spot and be fully aware of important details to share with GRG members during the meeting;
- assist the GRG members to get into the insight of the complaint and assist them in finding feasible, reasonable, mutually agreeable and doable solutions.

### **IPIG Project Coordinator**

272. Once notified that a complainant has lodged an appeal case at the Central level IPIG project coordinator will:
- contact the complainant(s) and draft a note with his/her understanding of the complaint;
  - participate to the appeal meeting, provide opinions and analysis, take minutes of the discussions;
  - if needed summon again assessment/valuation specialists and accompany them in the field;
  - request the chairperson to organize meetings, as necessary;
  - maintain communication between GRG and the complainants; and
  - Complaint Register is kept with IPIG and a copy shared with the Consultant.

### **Representatives of IPIG Safeguards Unit**

273. Once notified that a complainant has lodged at central:
- participate to all grievance meetings, provide opinions and analysis;
  - accompany eventual assessment/valuation specialists in the field, and
  - provide other GRG members as relevant with a position note to be reflected in the final meeting report.

### **Ombudsman**

274. Once notified of a complaint and a summoned by the LPC to a grievance meeting is submitted the Ombudsman will:
- monitor complaint handling process and ensure that decisions made by the GRP are equitable and objective;
  - provide independent opinions and recommendations related to the decision made on the case by the GRP team;
  - advise the complainant(s) on their rights and entitlements, as necessary;
  - participate to all GRG meetings and site visits;
  - participate in eventual assessment/valuation in the field; and
  - prepare a position memo at the end of the meeting(s) and forward it to LPC/chairperson of the GRG.

### **GRG Chairperson/Head of IPIG of MoTR**

275. Once notified that a complainant has lodged an appeal case at central level, the GRG chairperson will:
- contact the complainant(s) and draft a note with his/her understanding of the complaint;
  - trigger the GRG members through a letter of invitation;
  - chair the GRG meetings and ensure that minutes of the meeting are shared with all relevant parties;
  - review the content of each response prepared after deliberations to ensure accuracy as well as consistency of answers provided to the complainants;
  - ensure the administrative and organizational support for GRG members to work; and
  - support the decision made by the GRG and ensure that the follow-up actions are taken.

### **IPIG Project Coordinator**

276. Once notified that a complainant has lodged an appeal case at central level project coordinator will:
- contact the complainant(s) and draft a note with his/her understanding of the complaint;
  - participate to the appeal meeting, provide opinions and analysis, take minutes of the discussions;
  - if needed summon again assessment/valuation specialists and accompany them in the field;
  - request the chairperson to organize meetings, as necessary;

- maintain communication between GRG and the complainants; and
- Complaint Register is kept with IPIG and a copy shared with the Consultant.

### Representatives of IPIG Safeguards Unit

277. Once notified that a complainant has lodged at central level, the representatives of IPIG safeguard and technical unit will:
- prepare the chronology of events to understand sequence of developments prompting the complaint;
  - provide environmental and resettlement opinion on impacts claimed by the claimant;
  - examine large claims over USD\$10,000 with financial expert at Ministry and involve a qualified valuator;
  - request the chairperson to organize meetings, as necessary; and
  - maintain communication between GRG and the complainants.

### Technical Experts

278. Once summoned to provide expert advice for the assessment or valuation of an impact claimed by a complainant the relevant technical expert will carry out the needed investigations and prepare a report to be handed to the complainant and the other members of the GRG. The tasks will include:
- provision of relevant technical opinion for the case reviewed;
  - carry out the needed investigations relevant to their expertise; and
  - provide recommendation when the legal opinion from the relevant state agencies is necessary.

### 2.4. Grievance Resolution Process

279. The LPC of GRGs will be regularly available and accessible for APs to address concerns and grievances. He will assist the aggrieved APs in formally lodging their claims to the GRG. The complaints and grievances from the APs will be addressed through the process described in Table 23.

**Table 23: Grievance Resolution Process**

Steps	Action level	Process	Timeline
Step 1	on	At initial stage, the LPC will give hearing to the aggrieved person and try to give acceptable solutions. If any aggrieved AP is not satisfied with the solutions, then the aggrieved AP will lodge grievances in written to the concerned local GRG within 3 days.	
Step 2	GRG Resolution	After receiving written complaints of AP, the LFP will review and prepare a Case File for GRG hearing and resolution. A formal hearing will be held with the GRG at a date fixed by the LPC in consultation and the aggrieved APs. On the date of hearing, the aggrieved AP will appear before the GRG at the office of concerned Ayil-Okmotu and produce proof in support of his/her claim. The LPC will note down the statements of the complainant and document all proof. The decisions from majority of the members will be considered final from the GRG and will be issued by the LPC and signed by other members of the GRG. The case record will be updated and the decision will be communicated to the complainant AP by the LPC within 14 days of submission. If any aggrieved AP is not satisfied with the solutions, then the LPC will lodge grievances in written to the central GRG at MoTR with conclusion and supporting documents prepared at local level.	14 days
Step 3	Resolution of GRG Central	After receiving written complaints of AP, the GRG Chairperson of the central GRG will review and prepare a Case File for GRG hearing and resolution. A formal hearing will be held with the GRG at a date fixed by the GRG Chairperson and the aggrieved APs. GRG members will contact the complainant and visit his village. The IPIG Project Coordinator will note down the statements of the complainant and document all proof. The decisions from majority of the members will be considered final from the GRG and will be issued by the GRG Chairperson and signed by other members of the GRG. The case record will be updated and the decision will be communicated to the complainant AP by the IPIG Project Coordinator within 15 days of submission.	15 days
Step 4	Court of law	The court of law will be the last resort before the AP. Project Affected Persons can appeal to court should s/he disagrees with the decision of the Control Authority.	N/A

### 3. Additional Mechanisms Available for Grievance Redress

280. Any physical and legal person, any appellant can communicate his/her concern to the Court at any stage of grievance redress. The GRC will not restrict or influence the AP from applying to court for legal remedies.
281. If the complaint is found invalid, the GRG formulates a response and sends a written letter to the complainant, explaining the reasons of rejection. The complainant can appeal the decision of the local Court and bring the case to the ADB Accountability Mechanism. The project level GRG does not in any way impede APs access to the ADB Accountability Mechanism (AM8) or to the judicial or administrative remedies the Kyrgyz Republic.
282. The Information Pamphlet and Grievance Redress Form will carry the contact information for the Office of the Special Office Facilitator to be readily available once any AP may wish to register a complaint with the ADB AM.

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<sup>8</sup> Link to access relevant web page: [www.adb.org/site/accountability-mechanism/contacts](http://www.adb.org/site/accountability-mechanism/contacts)

**Complaint Receiving Officer**

Accountability Mechanism  
Asian Development Bank  
6 ADB Avenue, Mandaluyong City 1550  
Metro Manila, Philippines  
Tel: +632 632 4444 ext 70309  
Fax: +632 636 2086 [Email contact form](#)

## **I. Environmental Management Plan (EMP)**

### **1. EMP**

- 283. The EMP describes the various measures proposed under this Project, which were designed to avoid, mitigate, or compensate the adverse environmental impacts that may result from the Project. As such the EMP considers all phases of the Project cycle, namely the detailed design, construction and operational phases of the Project.
- 284. To ensure that the proposed mitigation measures will be carried out by the contractors during the construction stage, the design consultant will clearly set out in the tender and contract documents the contractor's obligation to undertake the respective environmental mitigation measures.
- 285. The EMP consists of two tables. Table 24 summarizes the environmental mitigation measures, and Table 25 provides an overview of the environmental monitoring. At the end is a statement which includes the timeframes and responsibilities for carrying out the environmental monitoring.

**Table 24: Environmental Management Plan**

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
DETAILED DESIGN PHASE					
General	In corporation of EMP into Bid Document	All impacts	All environmental managing activities described in IEE and, therefore, required activities by the Contractor shall be clearly indicated in the Technical Specification of Bid Document	Design Consultant	IPIG of MoTR
Surface water contamination	Designing of rehabilitation and/or replacement of 55 existing culverts and 3 bridges	Water contamination of road crossing irrigation system	During the designing, it is required to consider that all existing culverts/bridges will be cleaned, repaired or replaced road rehabilitation, during the rehabilitation depending on their respective conditions. All culverts are sufficiently dimensioned in order to prevent any damages or blockages to the existing local irrigation systems/river.	Design Consultant	IPIG of MoTR
Slope Stability	Earth filling and slope cutting	Erosion/Landslide	To reduce soil erosion process and slope failure due to river erosion, earthquake or peculiar geological conditions, the technical designing shall include: Slopes of cuts and embankments shall be arranged with account to soil stability and other conditions according to the Technical Specification on erosion/slope failure protection; • In the areas with steep slopes the project shall include rock fall protection design, rip-raps, protection structures and gabions; • For embankments higher than 6 meters, a step-like slopes must be arranged Interception ditches must be arranged at the slope tops in the cut-off areas, or on the benches. For steep slopes drainage systems must be arranged to intercept water flows and their diversion from the slopes.	Design Consultant	IPIG of MoTR
Flora and fauna	Approximately 30 trees need to be felled on the Balykchy – post 43 km	Tree losses that cannot be prevented. Main species are Populus alba	In the bit document, specify flowing: Contractor should be instructed that each tree removed should be replaced by at least two new saplings of the same or similar species and be planted at suitable locations, or as designated by the tree owner. It is required to endorse the trees to be cut under approval of relevant agencies. Plantations shall be conducted after technical works have been completed. Planting time shall be restricted to spring (March till April) and/or autumn (September till October). Trees to be planted shall have the following parameters: 1,5 – 2 m height, age 5 – 6 years. Distance in between individual trees shall be 6 – 8 m. Species: Populus alba (30%), Elm (70%), and deciduous shrubs Lohan in the villages.	Design Consultant	IPIG of MoTR
	Road widening	Habitat disturbance	Together with the Specialist from General Directorate of Biosphere Reserve the pre-project monitoring of birds within the territory of project road		
Cultural and historical site	Cultural and historical sites protection.	Potential Construction works impacts on cultural and historical sites and monuments finding chance. Cultural sites: • 8 km, Sary-Bulun caravansary, RHS	In the bit document, specify flowing: The objects of historical and cultural heritage are the objects of study and protection of the Ministry of Culture, Information and Tourism of the Kyrgyz Republic (MoCIT KR). To prevent exposure to these objects, it is necessary to develop Management Plan for cultural and historical sites. According to the law, protection zone of objects is not less than 50 m. All questions related to the establishment of protection zones, procedures, management plans should be coordinated with MoCIT KR and local government. Based on the findings of Archaeological Study (Appendix F), during the detailed design stage, Consultant should submit revised road design document, if necessary, along with the Management plan for objects of cultural heritage for MoCIT KR approval. In cooperation with MoCIT KR and local administrations it is required to conduct the visual	Design Consultant	IPIG of MoTR, MoCIT KR



MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
DETAILED DESIGN PHASE					
		- 35 m from the road. 11 +500 km, on the LHS is a cemetery – 50 m from the road.	inspection of cemeteries to document their condition before the start of construction works.		
Environment Safeguard Training	Training of environmental specialist through seminar	Reduce negative environmental impacts	Allocation of environmental specialist and preparation for seminar at construction stage shall be planned	Design Consultant	IPIG of MoTR
	and Safety Promotion for employee and local residents	onal accident, traffic accident, spread of HIV/STD	The Contractor shall be provided to ensure Occupational Safety and Health Act (OSHA) in Technical Specifications	consultant	MoTR
Livestock and Pedestrian Crossing	Road traversing cattle crossings	Accidents because of collision with cattle	In the bit document, specify flowing: Impacts from the road may include cattle crossing the road. This will be clarified during public hearings at the detail design stage. Depending on the situation, mitigation measures will be specified as appropriate. Possible mitigation measures would be the provision of warning signs in accordance with relevant road safety standards. In addition, reflectors may be provided on trees in the critical sections and the road fenced near pastures. The crossing of people in the residential areas will be installed through every 200-250 m.	Design Consultant	IPIG of MoTR
Bus stop	Designing of bus stop bay	Without bay, traffic flow be disturbed	Determination of bus stop location after discussion with local communities	Design Consultant	IPIG of MoTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
General	Submittal of applications/ site specific management plans before commencement of work	Project impacts will be minimized	<p>To submit General Site Specific Management Plan including following 12 annexes:</p> <ul style="list-style-type: none"><li>- Method Statement for Construction</li><li>- Dust Suppression Plan</li><li>- Blasting Works Management Plan</li><li>- Construction Noise Suppression Plan</li><li>- Surface Water Contamination Prevention Plan</li><li>- Borrow Pits Management Plan</li><li>- Soil Management Plant</li><li>- Solid and Liquid Waste Management Plan</li><li>- Cultural &amp; historical sites Management Plan</li><li>- Safety Management Plan</li><li>- Camp and Workshop Management Plan</li><li>- Material Processing Plants/Equipment and Storage Facilities Plan</li></ul>	Contractor	CSC, SETI, IPIG of MOTR
Environmental Specialist of CSC	Supervising of Contractor's environmental activity and reporting to IPIG	To follow the EMP	Mandatory half year report on monitoring of the environment should be prepared and submitted to IPIG/MOTR. Data for this report will be collected by the results of the quarterly reports of environmental specialist of CSC. Once a year International environmental specialist will conduct the complex control	CSC/ Contractor	CSC/IPIG
Committee of Grievance Redressing	Establishment and organizing the CGR	Solve disputes immediately	Prompt dissolvent of disputes/issues/complains from the construction works, incorporating all requirement in the Bid Document.	CSC	CSC, SETI, IPIG/MORT
Method of statements	Construction of bridges, culverts, road etc.	Clarifying what are the possible risk/environmental impacts to be caused	Descript construction details such as sequences, material used, size, duration etc.	Contractor	CSC, SETI, IPIG of MOTR
Air Pollution	Operation of construction machinery	Air pollution due to exhausted gases emission from the operation of construction machinery	Sensitive receptor sites of Balykchy (km 00+000) and Tash-Saray (km 11 + 000) should be considered as areas of mitigation in terms of air quality, noise/vibration. To reduce emission levels of both of exhausted gases and noise in general, the contractor must implement the following mitigating measures (i) keep construction equipment in good condition (ii) prevent idling of engines by shutting off machineries not in use for more than 3 minutes (iii) prohibit use of machinery or equipment that cause excessive smoke emissions (iv) utilize low- emission type machineries and (v) install tentative noise (air pollution) barrier, if necessary.	Contractor	CSC
		Dust rising by earth work and lorry running over unpaved road in sensitive area (km 0-3 industrial zone, km 11 Tash-	<p>Dust Suppression Plan shall be submitted to CSC.</p> <p>Spray water over the surface of unpaved road every 2 hours around sensitive receptors area when it is dry and wind is strong, based on the Site- Specific Dust Suppression Plan to be submitted before construction. Hauling truck shall be covered always.</p> <p>Material transport route shall be planned properly incorporating to Dust Suppression Plan. Estimates from the preliminary design for the section show those 668,000 cubic meters will be the</p>	Contractor	CSC, SETI, IPIG/MORT

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
		Saray village)	cut volume and 135,600 cubic meters for fill volume for the road section. Truck traffic will considerably impact local roads as well as the communities they traverse. Haul routes should be planned with CSC in coordination with IPIG and local authorities, providing sufficient maintenance to minimize dust, noise generation and disturbance to residents by restricting the hauling time between 07:00 and 18:00.		
	Blasting works	Air quality	<p>Blasting Work Plan shall be prepared and approved by all agencies concerned.</p> <p>Blasting works will be conducted at the site from km 19+500 and km 41 (along the Chu River); the sites are in mountainous area. Type and time of blasting works should be agreed with General Directorate of Biosphere Reserve.</p> <p>The main measures are hydro-dust suppression and conduct of blasting works for breaking of rocks in small volumes stratified (top to bottom) horizontal blasting hole charges in small diameter with a preliminary pre-splitting along the contour of the explosive volume.</p> <p>The Contractor for explosives works must have a valid license and a passport of blasting works. Blasting works are conducted based on the application and situational plan, in coordination with local authorities and with SETI permission for works. For blasting activities, it is also necessary to develop a Blasting Works Management Plan.</p> <p>It is required to consider prevention of fragmentation of species during the blasting operations</p> <p>A mitigation measure for power line protection is an obligatory installation of shields.</p>	Contractor	CSC; IPIG of MoTR
Noise and vibration	Construction works within villages and along sensitive receptors	<p>Disturbance of adjacent settlements due to elevated noise and vibration levels.</p> <p>(km 0-3 industrial zone, km 11 Tash-Saray village)</p>	<p>Construction Noise Suppression Plan shall be submitted.</p> <p>Noise must be limited to 70 dB (A). Construction activities shall be limited between 7:00 - 18:30 in urban areas and 06:00 – 19:00 within 500 m of settlements as well as limiting hauling traffic through settlements. Restrict speed limit to 30 km/hr within 500m of any settlements.</p> <p>To reduce emission levels of both of noise and vibration together with exhausted gases in general, the contractor must implement the following mitigating measures (i) keep construction equipment in good condition (ii) prevent idling of engines by shutting off machineries not in use for more than 3 minutes (iii) prohibit use of machinery or equipment that cause excessive smoke emissions (iv) utilize low- emission type machineries and (v) install tentative noise (air pollution) barrier, if necessary.</p> <p>For potential damages to local infrastructure, including private property and local (haulage) roads, compensation procedures will have to be established prior to the beginning of construction and approved by the engineer.</p> <p>all be made by certified machinery only which complies with all KR laws concerning noise and vibration at construction sites Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, World Health Organization (WHO), 1999.</p> <p>For acceptable indoor noise levels for residential, institutional, and educational settings refer to WHO (1999). Environmental noise directive 2002/49/EC.</p> <p>SN 2.2.4/2.1.8.562-96 “Noise at work sites, living premises, and public buildings and within</p>	Contractor	G of MoTR,  Traffic police service of the Ministry of home affairs

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			residence construction site"; SN 2.2.4/2.1.8.566-96 "Production vibration. Vibration in premises, residence and public buildings".		
Surface Water	Earth work, Spill of oil and damping of waste into waterway	Pollution form construction area runoff, and change in surface hydrology due to increased sediment load	<p>Surface water Contamination Prevention Plan shall be submitted to CSC.</p> <p>To mitigate negative impacts on the waterways, the following must be implemented: (i) store stockpiles of topsoil and other such materials at a safe distance from surface waters; (ii) long term stockpiles must be covered with grass or other suitable coverings; (iii) create settlement ponds where construction activities are near natural waterways.</p> <p>Unsustainable construction practices such as improper handling and storage of construction materials (e.g., concrete, asphalt, lubricants, fuels, and solvents etc.) can pose risk of contaminating the waterways crossed by the project road. Embankments and construction materials like fill, sand and gravel can be washed out by rainwater into watercourses during downpours. Oil and grease from leaks in engines can also accumulate in surface waters and should be properly controlled. To prevent these, appropriate mitigation measures must be taken such as (i) regular maintenance of all construction equipment, (ii) chemicals and oil must be properly stored into impermeable and bounded areas away from surface waters.</p> <p>Within the section, the critical spot is the Chu River. The Contractor should be extra careful in these spots as construction activities can directly contaminate the surface water and consequently affect the biological species in these areas. Contamination should be avoided and disturbance to biota be minimized. Water quality measurements should be done during actual periods of construction at these sites.</p> <p>During the construction of bridges, dimensions of construction site shall be the minimum necessary. It should be placed at levels that minimize flooding as much possible. The discharge of polluted water, landfills, parking cars and the construction of temporary facilities shall be located not within the water protection zones (not less than 150m) on the banks of rivers. On construction sites should provide capacity for the collection of sewage and garbage.</p> <p>The roads within the water protection zones should include the collection of mud water from the roadway surface with its subsequent treatment or sewage to eliminate the pollution of water sources. The quality of discharges into water bodies must meet the established requirements. In the water protection zones of rivers. It prohibits contamination of the earth surface, including the garbage dump, waste production, as well as parking, cleaning and repair of motor vehicles and road construction machinery, fueling. All works in water protection zone must be carried out based of permission from local authorities.</p> <p>The project documentation should include the restoration work after the construction of the bridge: the removal of the bed of the river banks, backfilled during the construction of supporting structures; cleaning of the river bed and the flood plain from cluttering their objects, extracting and hauling piles of scaffolding and temporary supports; dismantling of temporary facilities on the construction site and land reclamation, including borrow area and access roads.</p>	Contractor	CSC, IPIG/MOTR
		Contamination of surface water	Blasting works will be conducted at the site from km 19+500 and km 41 (along the Chu River), the sites are in mountainous area.	Contractor	CSC, IPIG/MOTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			<p>The main measures for preventions are mitigation measures for fragmentation of species during the blasting works, hydro-dust suppression and conduct of blasting works for breaking of rocks in small volumes stratified (top to bottom) horizontal blasting hole charges in small diameter with a preliminary pre-splitting along the contour of the explosive volume.</p> <p>The Contractor for explosives works must have a valid license and a passport of blasting works. Blasting works are conducted based on the application and situational plan, in coordination with local authorities and with SETI permission for works. For blasting activities, it is also necessary to develop a Blasting Works Management Plan.</p> <p>A mitigation measure for power line protection is an obligatory installation of shields.</p> <p>In order to prevent negative impacts from blasting works is necessary to protect water bodies with wooden boards (5m x 5m) mounted on poles. Used methods of drilling and blasting works such as the drilling short-hole method and theirs blast. Drilling small blast holes are prevented the explosion of a large expansion of the rock material. By scale such method is characterized as a small explosion and use wooden boards on these sites will be enough</p>		
Borrow areas	Exploitation of material such as sand, gravel and clay,	<p>Potential disturbance of landscape, infliction of harm for vegetation and damage of approach roads.</p> <p>Increasing of dust emission</p>	<p>Prior to the development of borrow pits, it is required to submit to CSC the Borrow Area Management Plan</p> <p>The opening of borrow pit within Issyk-Kul Oblast should be coordinated with the General Directorate of the Issyk-Kul Biosphere Territory</p> <p>Opening up new borrow sites, is not allowed inside the Issy-Kul reserve and it is required careful environmental assessment and special permission, together with restoration plan including followings;</p> <ul style="list-style-type: none"><li>· capacity and operation hours of a borrow pit;</li><li>· development and extraction sequence of borrow pit;</li><li>· technique and mechanisms for stripping and excavation of top soil;</li><li>· operation and time schedule for borrow pit development;</li><li>· extraction method and transport plan, including route(s);</li><li>· safety rules and hours of operation;</li><li>· expected quality of extracted materials;</li><li>· topsoil storage/protection and environment protection steps; and,</li><li>· rehabilitation of disturbed lands when site is decommissioned.</li><li>· calculation of mobile sources' emission charge.</li></ul>	Contractor	CSC, IPIG/MOTR
Soil Management Plan	Improper top soil preservation	Loss of top soil	<p>Soil management Plan shall be submitted to CSC.</p> <p>Removing of top soil occurring within site clearing corridor. It shall be stored for reuse. Long-term stockpiles of topsoil will immediately be protected to prevent erosion or loss of fertility. For</p>	Contractor	CSC, IPIG/MOTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			erosion protection, it will be sown with a rapidly growing vegetation, e. g. grass  Topsoil on the sections to be used as a stockpile for surplus construction material shall be removed and stockpiled to reuse them to cover these areas upon completion of works. In addition, a soil management plan shall be provided detailing measures to be undertaken to minimize effects of wind and water erosion on stockpiles, measures to minimize loss of fertility of top soil, timeframes, haul routes and disposal sites.		
Solid and Liquid Management Plan	Siltation of surface waters and/or impact on soils due to improper disposal of excess materials	Contamination of water and soil	Prevention of indiscriminal dumping of waste into river/open spaces  Solid and liquid wastes generated during construction shall be properly treated as per SSEMP prepared. Any material including excess soil excavated, chemical, liquid waste, construction rubbishes shall not be dumped into river all time. Only the runoff water, after removal of muddy particles, can be released into river.	Contractor	CSC
Cultural and historical site	Cultural and historical sites protection.	Potential Construction works impacts on cultural and historical sites and monuments finding chance.	To prepare Cultural & Historic Site Management Plan considering: In accordance with the Law of the Kyrgyz Republic on historical cultural heritage in the event of cultural monuments found, Contractor must stop all construction works and report the findings to the local executive authorities or any other competent organization (Institute of History and Cultural Heritage, National Academy of Sciences; Department of History, Kyrgyz National University after Balasagyn), MoCIT KR. Construction workers shall be strictly instructed that any disturbance of site is not allowed. Physical cordon around identified sites should be installed to minimize construction impact and alert workers/people from disturbing archaeological sites. Physical cordon around identified sites should be installed to minimize construction impact and alert workers/people from disturbing cultural and historical sites.	Contractor	CSC, IPIG of MoTR, MoCIT KR
Flora and fauna	Protection of Biodiversity	Degrade of biodiversity	To establish additional signs for km29 with the designation of the beginning of the biosphere territory, and also within the Balykchy Section from km 0 to km 43, to establish signs of a ban on hunting (restriction for hunting to capricons and quails, etc)	Contractor	SETI, IPIG of MOTR
	Road alignment in areas of tree plantations. Embankment filling of the tree stem area.	Tree losses due to embankment fill.	A maximum fill up of the tree stem area of 30 cm can be accepted. Fill up material in the tree stem area has to be organic soil. A filling up of more than 30 cm will damage the tree. In this case cutting can't be prevented and a new tree is to be planted as a compensation measure at the respective location within the existing RoW.  Species to be planted are walnuts, maple ash tree, elm tree, white poplars, white willow, white acacia.  Plantings shall be conducted after technical works have been completed. Planting time shall be	Contractor	CSC, SETI, IPIG of MoTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			restricted to spring (March till April) and/or autumn (September till October). Quality of newly to be planted trees shall be 16 to 18 cm of stem circumference at least in 1,5 m height.		
	Bottom of embankment of designed road lying very close to tree rows	Potential damaging of trees during construction activities	Implementation of a temporary vegetation protection fence during construction activities.	Contractor	CSC, SETI, IPIG of MoTR
	Environmental training	Prevent disturbance of habitat	Training of workers on the importance of the biosphere territory "Issyk-Kul", on prohibition and responsibility for poaching, preventive measures for biodiversity conservation in the given territory. Include in the monitoring plan monitoring of species that are on the verge of extinction	Contractor	IPIG of MoTR
	Road width expansion works	Loss of trees and bushes	Do not carry out the cutting of bushes in the river floodplain at km 12-14, the expansion to carry out to the mountains.	Contractor	IPIG of MoTR
		Impact to biodiversity	Together with the Specialist from General Directorate of Biosphere Reserve the pre-project monitoring of birds within the territory of project road	Contractor	CSC. IPIG / MOTR
		Impact to Biodiversity	In order to contribute to the fight against poaching, to establish additional signs for km29 with the designation of the beginning of the biosphere territory, and also within the Balykchy Section from km 0 to km 43, to establish signs of a ban on hunting (restriction for hunting to Capricorns and quails, etc.) are required. The design (content of the text) of informational signs, as well as the place of their installation, will be worked out at a later stage.	Contractor	IPIG of MoTR
	Traffic safety management	To improve traffic safety for pedestrians and vehicles	Traffic safety program for especially around the sensitive receptors by installing necessary safety measures specified in the design or in the Technical Specifications to ensure that community and traffic safety issues during the construction phase of the Project, including incorporation of: (i) Safety barriers; (ii) Traffic signs; (iii) Road crossings; (iv) Speed bumps, (v) Speed limits and (vi) Flagman when necessary. (vii) information to the public about the scope and schedule of construction activities and	Contractor	CSC, IPIG of MoTR, MoCIT KR



MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			expected disruptions and access restrictions		
	Occupational safety management	For safety protection of workers and adjacent communitie	For occupational safety, following shall be provided:  (i) Adequate health care facilities (including first aid facilities) within construction sites with a nurse shall be stationed while a doctor who shall visit regularly and when necessary.;  (ii) Training of all construction workers in basic sanitation and health care issues, general health and safety matters, and on the specific hazards of their work;  (iii) Personal protection equipment for workers, such as safety boots, helmets, gloves, protective clothing, goggles, and ear protection in accordance with KR legislation;  (iv) Clean drinking water to all workers; (v) Adequate protection to the general public, including safety barriers and marking of hazardous areas;  (vi) Safe access across the construction site to people whose settlements and access are temporarily severed by road construction;  (vii) Adequate drainage throughout the camps so that stagnant water bodies and puddles do not form;  (viii) Sanitary latrines and garbage bins in construction site, which will be cleared when reaching capacity by the contractors to prevent outbreak of diseases.	Contractor	CSC; IPIG of MoTR, MoCIT KR
	Maintenance of Access	Traffic congestion	Detour roads need to be maintained for connectivity and safety purposes. Traffic plan incorporating these detour roads should be formulated by the contractor and shall be included in Safety Management Plan	Contractor	CSC; IPIG of MoTR
	Blasting works	Safety problem	Blasting works will be conducted at the site from km 19+500 and km 41 (along the Chu River), the sites are in mountainous area.  Contractor shall properly control the traffic so that no passenger/vehicle is involved in the blasting itself or rock falling. A mitigation measure for power line protection is an obligatory installation of shields.	Contractor	CSC; IPIG of MoTR
Concrete and Crushing Plant	Installation of Asphalt, concrete and crushing plants	Air pollution, noise, vibration and surface water contamination	Material processing Plants/Equipment and Storage Facilities Plan shall be prepared and implemented as per the plan after approval of the plan by CSC/IPIG  During the selection of a site for bitumen plant, concrete plant, stone crusher equipment, which emit pollutants, noise and transmits vibrations, the contractor will need to comply with SanPiN 2.2.1/2.1.1 and SanPiN 2.2.1/2.1.1.006-03, and establish a specific buffer zone around any such facility. In the KR this is referred to as a sanitary-hygienic zone, and is a mandatory element of any facility that affects habitats and human health. The sanitary-protection zone (SPZ) separates the area of an industrial site from residential areas, landscape and recreation areas, parks, and	Contractor	CSC; IPIG of MoTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			health resorts with mandatory demarcation of boundaries by using specialized information signs.		
	Site selection. Operation of aggregate crusher	Increased dust emission and noise emission	Careful site selection of aggregate crusher in order not to interfere with any sensitive receptor. Distance to next settlement and residential houses at least 300 m downwind. Site selection for aggregate crusher has to be approved by the Safeguard Department in the IPIG of the MoTR.	Contractor	CSC, IPIG of MoTR
	Site selection. Operation of asphalt plant	Odor emission and safety risks	Asphalt plants shall be 500 m downwind from any settlements and residential houses.  Provide spill and fire protection equipment and submit an emergency response plan (in case of spills, accidents, fires and the like) to the authority in responsibility prior to operation of the plant.  Secure official approval for installation and operation of asphalt plants from MoTR.	Contractor	CSC, IPIG of MoTR
		Water pollution due to spilled bitumen	Bitumen will not be allowed to enter either running or dry streambeds nor shall it be disposed of in ditches or small waste disposal sites prepared by the contractor. Bitumen storage and mixing areas must be protected against spills and all contaminated soil must be properly handled according to legal environmental requirements. Such storage areas must be contained so that any spills can be immediately contained and cleaned up.	Contractor	CSC, IPIG of MoTR
	Construction activities in close vicinity to existing infrastructure such as water supply pipes and other facilities, waste water discharge facilities, electricity lines etc.	Damage to infrastructures	Measures will be ensured in engineering designing to avoid any disturbance to the existing infrastructure.  Prior to construction start the respective service agencies shall be informed about the construction work.  Coordinate with respective agencies and provide prior information to the public in case of any required disruption in services during construction	Contractor	CSC; IPIG of MoTR
Camp and Workshop management	Construction of camp/workshop	Surface water contamination, disease transmission	The contractor shall submit documents for approval (short statement and site plan in appropriate scale) which indicate:  Site location, surface area required and layout of the work camp. The layout plan shall also contain details of the proposed measures to address adverse environmental impacts resulting from its installation.	Contractor	CSC, IPIG of MoTR, local health units of the Ministry of Health

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			<p>Sewage management plan for provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of watercourses;</p> <p>Waste management plan covering provision of garbage tons, regular collection and disposal in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tires, etc.) consistent with appropriate regulations;</p> <p>Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources and irrigation facilities. Storage facilities for fuels and chemicals will be located away from watercourses. Such facilities will be bounded and provided with impermeable lining to contain spillage and prevent soil and water contamination. Prior to the commencement of works the site installations shall be inspected for approval. The selected site will not be on top of ground water area or near surface waters.</p>		
		Enhance the safety and health of workers	<p>To provide an Environmental and Safety Officer (ESO), under which a Environmental Officer (EO) and a Safety Officer (SO) also be provided. Their roles are to provide environmental and safety training to the employees and surrounding residents according to the requirements of the individual work place. Prior to the commencement of works, the work site personnel shall be instructed about safety rules for the handling and storage of hazardous substances (fuel, oil, lubricants, bitumen, paint etc.) and also the cleaning of the equipment. In preparation of this the contractor shall establish a short list of materials to be used (by quality and quantity) and provide a rough concept explaining the training / briefing that shall be provided for the construction personnel. The contractor shall provide information to workers, encouraging changes in individual's personal behavior and encouraging the use of preventive measures. The goal of the information is to reduce the risk of HIV / STD transmission among construction workers, camp support staff and local communities.</p>	Contractor	CSC, IPIG of MoTR, local health units of the Ministry of Health
Utilization of Wasted Asphalt	Removal of asphalt	Water/soil contamination	<p>Old asphalt pavement will be removed and be replaced in the new pavement. Storage or stockpile areas of old asphalt should be situated where they pose no risk of contamination to the environment. In coordination with local authorities, location of old asphalt stockpile areas will be identified, with a minimal distance of 500m from any settlement. Preferably, storage areas should be in state-owned land. If private lands will be used, a negotiated rent on the property should be established with the land owner. All temporary asphalt pavement storage and processing areas shall be agreed upon with the regional departments of SAEPP under the Government of KR. Old asphalt should be trucked away in blocks and stockpiles should be no higher than 2.5 m.</p> <p>Using old asphalt – The hacked asphalt old asphalt waste shall be transferred to Local RMU of MoTR tentatively. Then the old asphalt is used to strengthen the surface of existing second road in the villages. The top coating of the shoulders with the addition of gravel-sand mixture with 15 cm thickness is recommended.</p>	Contractor	CSC/IPIG
Other social issues	Irrigation water	Competition for water resources	Conduct consultation with local authorities to identify sources of water (for spraying and other construction requirements) that should not compete with the local population.	Contractor	CSC/IPIG
	Farm land	Disturbance of farm land by passing of heavy	Equipment can move only in side predetermined area only. Taping and barrier fence shall be installed between working site and private land.	Contractor	CSC/IPIG

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
		equipment by mistaken			
	Damage to road pavement, bridges and culverts	Overloading of heavyweight transport may damage the road pavement, bridges and culverts	Contractor should ensure that the weight of the loaded transport should not exceed the road specifications with control at weigh bridges. Contractor should control the checking the material transportation by controlling the traffic movement.	Contractor	Consultant (CSC)

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
OPERATION PHASE					
Air quality	Increase of traffic volume	Air pollution	Although no traffic air pollution is estimated until 2030, monitoring may be necessary if residents complain about air pollution.	RMU-10 of MoTR	MoTR, SETI
	Increase of traffic volume	Noise nuisance	Limit driving speed to 60km/h just around the settlements. To be enforced by traffic police.  Monitoring may be necessary if residents complain about traffic noise. Based on the monitoring results and consultation with residents, mitigation measure such as installation of noise barrier shall be studied.	Traffic Police	MoTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
OPERATION PHASE					
Soil and surface water	Increased traffic volumes and higher vehicle speeds	Increased risk of accidents with possible spills of harmful substances	Spill-contingency plan, contingency plan or emergency response plan is a set of procedures to be followed to minimize the effects of an abnormal event on the Project roads, such as a spill of oil, fuel or other substances that may harm agricultural land and drinking/irrigation water resources or have adverse effects on the natural balance of sensitive areas.  Additional measures to mitigate risk of accidents and spill of harmful substances are speed control.	RMU-10 of MoTR	MoTR, SETI
	Damaged drainage or uncontrolled erosion.	Uncontrolled erosion.	Routine monitoring of drainage and erosion control at least twice a year.	RMU-10 of MoTR	MoTR, SETI
Fauna and Flora	Negligence of tree maintenance along the road	Loss of trees	Maintenance of newly planted trees	RMU-10 of MoTR	MoTR, SETI
	Poaching	Poaching of fauna/flora	Installation of signs not to poaching	RMU-10 of MoTR	MoTR, SETI
Safety	Increased traffic flow	increased pedestrian vs. vehicle accidents due to increment of traffic volume and higher speed as a result of improved road design	Integrate in the engineering design safety features such as speed control signs, proper road markings, streetlights, pedestrian crossing, livestock crossing and other visual means.	RMU-10 of MoTR, Traffic police service	MoTR
	Road crossing	Traffic accident for Livestock and Pedestrians	Need to install the road sign indicating the places of transition of people and livestock. The crossing of people in the residential areas will be installed through every 200-250 m.	RMU-10 of MoTR	MoTR, SETI
Climate Change	Daily activities	Water flood	Precaution and immediate announcement of disasters to residents/drivers	RMU-10 of MoTR	MoTR, SETI

284. Prior to construction works, the contractor shall provide a comprehensive general SSEMP covering the following aspects (as Annexure):

- Dust management which shall include schedule for spraying on hauling and access roads to construction site and details of the equipment to be used. The contractor shall pay a special attention to water spraying in settlements and at repair and construction sites.
- Layout of the work camp and details of the proposed measures to address adverse environmental impacts resulting from its installation
- Sewage management including provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of watercourses  
Waste management covering provision of garbage bins, regular collection and disposal in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tires, etc.) consistent with appropriate regulations
- Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources and irrigation facilities. Storage facilities for fuels and chemicals will be located away from watercourses. Such facilities will be bounded and provided with impermeable lining to contain spillage and prevent soil and water contamination
- Soil Management Plan detailing measures to be undertaken to minimize effects of wind and water erosion on stockpiles of topsoil and excess materials, measures to minimize loss of fertility of top soil, timeframes, haul routes and disposal sites for excess materials.
- Borrow Pits Material and Source Management and Reinstatement Management Plans
- Method statement or plan for the execution of bridge construction works including measures that will be undertaken to address adverse environmental impacts such as erosion of river embankment and siltation of watercourses that may result from such activities
- Blasting works management plan
- Cultural & historical sites Management Plan
- Emergency response plan (in case of spills, accidents, fires and the like) prior to operation of the asphalt plant

285. The SSEMP shall be submitted by the contractor for approval to the Construction Supervision Consultant.

## **2. Monitoring**

### **2.1. Environmental Monitoring plan**

286. Environmental monitoring is an important aspect of environmental management during construction and operation stages of the project to safeguard the protection of environment. During construction, environmental monitoring will ensure the protection of embankment from potential soil erosion; borrow pits restoration, quarry activities, location of work sites, material storages, asphalt plants, community relations, and safety provisions. During operation, air, noise, and surface water quality monitoring will be important parameter of the monitoring program.

**Table 25: Environmental Monitoring Plan**

Issue	What parameter is to be monitored?	Where is the parameter to be monitored	How is the parameter to be monitored?	When is the parameter to be monitored? Frequency	Institutional responsibility
<b>Construction stage</b>					
Air quality deterioration	Dust, SO <sub>2</sub> , NO <sub>2</sub>	At sensitive receptors within settlement. Balykchy (km 00+000) – This is the start of the road section and with considerable number of people around. • Tash-Saray (km 11 + 000) – Residential areas near the road.	By means of suitable portable measurement device.	Just before construction start. and every 2 monthly basis	CSC
	Check certificate of vehicles and equipment	At asphalt and crushing plants.	Visual inspection	Unannounced inspections during construction works	CSC
	Are the truck loads covered or wetted ?; Compliance with SSEMP	Material transport route in front of sensitive receptors	Visual inspection	Unannounced inspections during work	CSC
Noise/ vibration	Noise Level and Vibration Level	At sensitive receptors within settlement. Balykchy (km 00+000) – This is the start of the road section and with considerable number of people around. • Tash-Saray (km 11 + 000) – Residential areas near the road.	By means of portable noise / vibration measurement device	Just before construction start. and every 2 monthly	CSC
Water quality in surface waters (rivers)	Turbidity, Oil Products, pH, DO, TSS, Ec and Temperature	Upstream and downstream where the Project road crosses Flume (12 km + 500), km 10 near the Chu river and on the 40-41 km in the period of blasting works.	Measurement either directly in river water with a suitable measurement device or sample taking and measurement in a certified laboratory	Just before construction start. and every 2 monthly	CSC
	Contractor's compliance with his approved method statement	Bridges and Culverts, km 10 near Chu River	Visual inspection	Unannounced inspections during bridge and culvert works	CSC, SAEPP
	Prevention of spilling of oil and fuel	Equipment servicing and fuelling at Contractor's yard	Visual inspection	Unannounced inspections during construction	CSC control by IPIG of MoTR
Top soil preservation	Stockpiling and means of protection	Stock pile yard	Inspections's observation	month	CSC control by IPIG of MoTR
Physical damage of the Cultural sites (cemeteries)	Status of Cultural sites (cemeteries) Document the condition of the cemeteries and mausoleums before constructions works.	Cultural and historical sites: • 8 km, Sary-Bulun caravansary, RHS - 35 m from the road. • 11 +500 km, on the LHS is a cemetery – 50 m from the road.	Visual observation	Before construction start and during construction period	CSC
Fauna and Flora	Status of trees near the filling area	At respective tree locations.	Visual inspection	Monthly	CSC control by IPIG of MoTR



Issue	What parameter is to be monitored?	Where is the parameter to be monitored	How is the parameter to be monitored?	When is the parameter to be monitored? Frequency	Institutional responsibility
<b>Construction stage</b>					
	Status of identified dangerous (EN) species (3 birds and one mammal accordance Table 11) as:  <u>Birds (EN)</u> Falco cherrug, Neophronpercnopterus, Oxyuraleucocephala,  <u>Mammals (EN)</u> Cuonalpinus	Biosphere zone Issyk-Kul 00+000 km – 42 km	Invited biology specialist	After the first monitoring will be prepared monitoring plan with frequency study	CSC control by IPIG of MoTR
Worker's safety and health	Record of clinic with number of visitors/treatment done Official approval for worker's camp;  Availability of appropriate personal protective equipment;  Record of safety training to the staff	Job site and worker's camp	Inspection; interviews;  Comparisons with the Contractor's method statement	Weekly site visits by the hired Health and safety expert.  Unannounced inspections during construction and upon complaint.	CSC
Worker's education on AIDS and STD	Record (minutes of seminar, attendance list) and photos of attendances of training, awareness campaign of prevention of HIV/AIDS	Job site and worker's camp	To be determined by assigned Construction Supervision	After beginning of works and at appropriate intervals throughout construction	CSC, local health units of the Ministry of health
Asphalt plant	Possession of official approval or valid operation license	Asphalt plant	Visual Inspection	Before work begins	CSC
Borrow areas	Possession of official approval or valid operation license Water spraying	Sand and gravel borrow pit and / or quarry	Visual Inspection	Before work begins	CSC control by IPIG of MoTR

Issue	What parameter is to be monitored?	Where is the parameter to be monitored	How is the parameter to be monitored?	When is the parameter to be monitored? Frequency	Institutional responsibility
<b>Operational stage</b>					
Traffic noise	Equivalent Noise Level	Sensitive receptors	Handy type level meter	Throughout the year	Laboratory/CSC (1 <sup>st</sup> year only)
Traffic accident	Number of injury and death of animals	Along the new road	Interview to police	Once a Year	Regional Departments of State Road Administration (UAD, LUAD, and GDAD BO)
	Accidents that cause spills of harmful substances	Along the new road	Counting of accidents	Once a Year	MoTR jointly with Road police service of the KR Ministry of home affairs and KR Ministry of emergency situations
Damaged drainage or uncontrolled erosion	Leakages in drainage system and damages due to erosion	Location of culverts and drainage facilities	Visual inspection	Once a Year	Local MoTR departments
Fauna and Flora	Status of tree maintained	In locations of newly planted trees	Visual inspection	Once a Year	Local MoTR departments joint with local authorities
	Status of identified dangerous (EN) species (3 birds and one mammal accordance Table 11) <u>Birds (EN)</u> Falco cherrug, Neophron percnopterus, Oxyuraleucocephala, <u>Mammals (EN)</u> Cuonalpinus	Biosphere zone Issyk-Kul 00+000 km – 42 km	Staff of the General Directorate Biosphere zone Issyk-Kul	Monitoring will be continued after construction stage	General Directorate Biosphere zone Issyk-Kul

## 2.2. Budget on Mitigation Measures

287. Most of the mitigation measures require the contractors to adopt good site practice, which should be part of their normal construction contract, so there will be no additional costs to be included in the EMP. Costs of design-related mitigation measures are included in the budgets for the civil works.
288. The primary impact that needs to be mitigated in the overall implementation of the project will be on the affected trees which were due to widening of the carriage way. These trees are mainly common trees such elm, poplar and black locust. The RAP has identified individual trees to be cut. However, in the vegetated areas, an estimate is presented based on accepted convention.
289. In order to have a higher degree of success for replacement of affected trees in the section, 2 saplings of the same or similar species is proposed to be planted. Accordingly, the estimated number of trees and cost for the affected trees to be to be substituted is shown as in Table 26.

**Table 26: Number and Cost for Mitigation of Affected Trees**

#	Item	Unit	QTY	Remarks
1	Affected trees due to widening	Each	30	Indicated in field inspection for Cutting
2	For 1:2 Ratio of Replacement	Each	100	Estimated Trees to be Planted
3	Average cost of Replacement	Som	500	Cost of Sapling & Planting
	<b>Total Cost</b>	Som		Budgetary Estimate
	69 Som/ 1 USD	USD	725	Budgetary Estimate

## 2.3. Budget on Monitoring Activities

290. The estimated cost for the environmental management and monitoring on the consultancy for the entire project construction period of two (2) years and one month is shown in the Table 27 below. This will include fees and other associated cost for management and monitoring of the construction sites and affected areas in the project road. The Construction Supervision

Consultant will be responsible for conducting periodic parametric measurements as a basis for taking measures to improve their activities and taking measures to implement them. The necessary budget for monitoring activities will be included in the contract of the consultant. Hence, a budget for periodic parametric measurements is hereby included in the Table 28 below.

**Table 27: Budgetary Cost for Environmental Monitoring Specialists**

Item	Quantity	Unit Cost	Total Cost
Implementation of EMP		US \$	US \$
International Environmental Specialist (IES)	4 months / 2 years, 1 month*	14,000	63,000
National Environmental Specialist (NES)	15 months/ 2 years, 1 month*	2,500	37,500
Others (travel, per diem, surveys/interviews, reporting, etc.)	LS	20,000	20,000
Total			\$ 120,500

\* Period of construction work estimated 2 year and 1 year a technical survey (measurements 1 month a year) and physical engagement of Environmental Specialists can be only 7 month a year, without winter break period.

**Table 28: Budgetary Cost for Environmental Monitoring Requirements and for Monitoring of identified endangered birds**

Item	Quantity	Unit Cost	Total Cost
Implementation of EMP		US \$	US \$
6 month a year x 2* point (air) x 2 (years) 1** month	26	150***	3,900
6 month a year x 6* point (water) x 2 (years) 1** month	78	100***	7,800
6 month a year x 2* point (noise - vibration) x 2 (years) 1** month	26	150***	3,900
Monitoring of birds (specialist attraction, transportation costs, preparation of the report) at the rate of 6 times for 2 years (3 times a year)	6	600***	3,600
Total			\$ 19,200

\* - the number of points and measurements may vary

\*\* - 2 years a physical work and 1 year a technical survey (measurements 1 month a year)

\*\*\* - the cost of laboratory services may vary

*Note: Budgets were prepared on May 2016*

### 3. Mechanisms for implementation

#### 3.1. Institutional Framework

291. The relevant institutional entities for the project include the KR's Ministry of Finance (MOF), Ministry of Transport and Road (the EA), Investment Projects Implementation Group (IPIG) under MoTR, the State Agency of Environment Protection and Forestry (SAEPF), the State Inspection on Ecological and Technical Safety under the Government of the Kyrgyz Republic (SIETS), the Department for Disease Prevention and State Sanitation and Epidemic Control of the Ministry of Health Protection of the Kyrgyz Republic.
292. MoTR is responsible for transport sector development and is the EA for the project. IPIG is working under MoTR and will carry out the responsibilities assigned to MoTR.
293. MOF is the responsible government body for coordination with ADB and other donors for foreign assistance.
294. SAEPPF is a leading state environmental agency responsible for the environmental policy of the country and coordination of environmental activities of other state bodies. Its functions include:
  - Development of environmental policy and its implementation;
  - Carrying out a state environmental expertise;
  - Issuance of environmental licenses;
  - Environmental monitoring;
  - Delivery of environment information services.
295. SIETS carries out its activity in accordance with the Law "On Procedure for inspection of business entities". SIETS exercises control over compliance in established order of:

- environmental legislation, set rules, limits and standards of environmental management, standards for emissions and discharges of pollutants and waste disposal in the environment;
  - requirements of industrial safety in the construction, expansion, reconstruction, modernization, operation, conservation and liquidation of hazardous production facilities;
  - requirements of land legislation;
  - requirements for safe operation of equipment and facilities for storage and distribution of petrochemicals and gas, cranes;
  - requirements of safe use rules in the construction, assembling and commissioning of electrical networks and electrical equipment.
296. The Department for Disease Prevention and State Sanitation and Epidemic Center (DDPSSEC) of the Ministry of Health supervises sanitary and epidemiological welfare of the population, safety of goods and products, environmental compartments and conditions, prevention of harmful impacts of environmental factors on human health. DDPSSEC establishes MPC of chemicals in the environment with regard to the human health safety.
297. The following measures will be taken by the Consultant and by IPIG to perform environmental compliance with the EMP and Monitoring Plan during Project implementation:
- The tender and contract documents will clearly set out the contractor's obligations to undertake environmental mitigation measures set out in the Environmental Management Plan.
  - The recommended environmental mitigation costs are included as separate items in the Bills of Quantities. This will ensure that there is specific environmental mitigation budget which will be implemented as required. During the procurement, contractors will be encouraged to include these costs in their rates and present the mitigation cost as a line item in the Bill of Quantities. There will be an identified extra payment in the contract to ensure measures are coasted and carried out.
  - The contractor will recruit an environmental, health and safety manager, who will be responsible for implementing the contractors' environmental responsibilities. The manager will also be responsible for health and safety aspects of work sites. Before commencing physical construction, Contractor will prepare site-specific EMPs (SSEMPs), submit to Construction Supervision Consultant (CSC) and ABD for endorsement and IPIG for approval.
  - CSC will conduct environmental monitoring and assist IPIG in implementing EMP and supervising the implementation of mitigation measures by the contractors.

### **3.2. Reporting Requirements**

298. MoTR will monitor and measure the progress of implementation of the EMP. In this regard, semiannual monitoring reports during construction stage will be prepared by IPIG with assistance of Construction Supervision Consultant and then disclosed at ADB and IPIG/MoTR websites. This report is owned by MoTR. Contractor submits to CSC monthly reports and reports on compliance with mitigation measures and other corrective actions. CSC submits to IPIG quarterly reports containing a section on safeguard performance.

## **J. Conclusion and Recommendation**

### **1. Conclusions**

299. The better road design and condition of the pavement will decrease operating costs for all vehicle owners, helping to make vehicles last longer. Road safety measures will also be improved by providing new traffic signs, safety railings, and pedestrian and livestock crossings for the road.
300. Overall the project has significant advantages to the local people and companies operating in the country by providing better access to national and regional markets.
301. At the same time, this project has many work components that can potentially lead to long term, even chronic environmental impacts. These are associated with erosion, tree removal, damage to intersections and roadside access, unaddressed chronic and rising air pollution and noise conditions which are already excessive, inadequate management of large volumes of old asphalt pavement to be removed and inadequate repair and replacement 55 culverts and 3 bridge along the route. The IEE and its EMP have provided the steps necessary to avoid many of the construction period impacts, by developing good protocols and work programs for managing potential impacts, and will be implemented.
302. The following tasks, all discussed in detail in the IEE and the EMP material are considered the most important impacts which, if the EMP is followed, could be adequately mitigated.
- 303. *During the preconstruction period the eight key tasks to be implemented by MoTR, IPIG and CSC will be:***
1. Insertion of EMP mitigation and monitoring measures into contract specifications.
  2. Preparation of a list of sections where topsoil conservation works will be required when rehabilitating the road.
  3. Earthworks Haul Route framework, defining at least was vehicles cannot go.
  4. Construction period access management and restoration steps, as a basis for use by the contractor, working with the traffic police.
  5. Tree Inventory, identification of special groves, protection where possible, and cutting a replanting plan.
  6. Inclusion in road design of public safety and public services features, namely:
    - Pedestrian crossings and traffic lights
    - Lighting signage and sidewalks
    - Bus stops
    - Livestock passes.
  7. Provision of technical capacity building.
- 304. *During the construction period CSC and the contractor(s) will need to:***
1. Undertake Air Quality and noise measurement field-testing for the full three years and one operating year.
  2. Contractor to manage all petroleum products and prevent spills, proper disposal.
  3. Contractor to manage sewage and garbage at work sites at all time.
  4. Provision of basic occupational health and safety items at work sites, including first aid, water, shade and proper gear including hats, shoes and face masks.
  5. Maximize the reuse or redistribution of the old asphalt.
  6. Undertake the tree planting and maintenance task as each construction area is vacated; i.e. do not wait until the end of the construction period.
  7. Implement dust suppression program on all haul roads and at construction sites.
  8. Understand and implement all regulations standards and obtain licenses for all borrow site operations and rehabilitation.
  9. Enforce occupational health and safety as prescribed by law.
  10. Inspect all culverts to be sure the re-installation does not lead to chronic downstream scour, and that any diversion and debris have been cleared.

**305. *During year 1 of the operating period the CSC and Contractor with input from the RMU will:***

1. Make certain that all replanted trees are healthy and properly maintained and protected for the winter—this may require strengthen the RMU as there will be up to 60 trees to manage.
2. Prepare a photo record of all culverts, confirming proper placement and debris removal.
3. Continue the air quality and noise monitoring for the year.
4. Examine noise data collected and plan noise attenuation measures such as berms and barriers at sensitive sites.
5. Inspect decommissioned borrow areas to confirm rehabilitation and proper closure.
6. Monitor value of pedestrian and livestock crossing features, with a view to adjustments/improvement as needed.
7. At the end of each period the EMP specifies the completion of progress reports, which will be used to monitor compliance and shape the next stage.

**2. Recommendations**



306. The EMP will be followed carefully and required reporting completed in a timely fashion. MoTR recommends that, based on the noise testing during construction and the first operating year, noise suppression measures be implemented.
307. The tree management and maintenance function should be passed to local communities or RMD, until trees have reached 8+ years and do not need careful maintenance.
308. CSC and IPIG will deliver the training to all active project participants and concentrate giving sound advice to the contractor, especially on the preparation and implementation of the CEWP.
309. Shortly after the operating period starts, the CSC and contractor will conduct safeguards compliance check to be sure that all measures required of the contractor have been met.
310. This IEE is “living” document and if required, it will be updated taking into account all environmental requirements, and any significant changes will be discussed and agreed to with ADB.

## ANNEXE-A: Outlining Tables of Project


### Annex A1: Alignment Sheet

The result of the site visits by the international and local environmental specialists are summarized in an Alignment Sheet. This shows relevant environmental features which can be of concern during the implementation of the road. For the section “Balykchy (Km 0) to kilometer-post 43 (Km 43)”, the Alignment Sheet is shown below.

#### Alignment Sheet

Nº	Section	Description	Parameter	Comments
<b>Section 1: Balykchy (0 km) – 43 km</b>				
1.	0 km, Balykchy	Ring road with roads to Balykchy, and to Kochkor village (project road).	Dust, noise, vibration, SOx, NOx	Physical analysis and instrumental measurements The measurements of the abovementioned parameters are made along the project road via portable measuring tools
2.	1 km	Railroad crossing; and to the left - the gas station.	-	-
3.	2 km	Two (2) trees may be cut down at RHS located 8.7 m from the center of the road.	-	To be verified with the design
4.	3 km	Along the right-hand side there is an electro-distribution station (3AO-ИОС).	-	-
5.	3 km, 6 km	Old borrow pit was discovered on 3+500 LHS which can be used for the project. Old borrow pit and asphalt plant were located on 6+500 RHS, which also can be used for the project.		Potential Material source to be verified
6.	8 km	The road alignment comes close to the shore Chu River  Chu River	Analysis of the quality of water in the oil, turbidity	Physical and chemical analysis.
7.	8 km	 Sary-Bulun caravansary (N42.400664 E76.099044) - around 8 km from Balykchy in the direction of Kochkor. RHS, 35 m from the road. This is ruin of roadside inn discovered in 1971-1973 by Vinnik D.F. Detected by archaeological investigation.	-	Visual
8.	10 km, Chu River, Tash-Saray village	Chu River runs along the road. The area is characterized as deserted piedmont close to the discharge point of Chu River. This river is regulated by Orto-Tokoy Reservoir. Its water is used for irrigational purposes. Maximum water flow is 120 m3/sec. During construction, it may become necessary to erect retaining walls along the riverbank close to the road. Vegetation such as are sandthorns, cattails and willows were found along the riverbank.	Dust, noise, vibration, SOx, NOx	Special measures to protect water quality



No	Section	Description	Parameter	Comments
9.	11 km Tash-Saray village	Chu river runs adjacent to the road. Residential buildings are located at least 20m away from the edge of car lane	-	Physical and chemical analysis.
		One (1) tree may be cut down at LHS located 8.4 m from the center of the road. On the left is a cemetery of approximately 50m.	-	To be verified with the design
	11 km +500	The road comes close to Chu River reinforced concrete works, needed reconstruction reinforcing walls.	Analysis of the quality of water in the oil, turbidity	-
	11 km + 700	One (1) tree may be cut down at RHS located 8.0 m from the center of the road.	-	To be verified with the design
10.	12 km	Old gravel-sand borrow pit is discovered (LHS 12 km), which can be used in road reconstruction.	-	Potential Material source to be verified
		Along the road, a power 10 thousand kW line was found.	-	Potential Hazard
11.	12+055 km	Irrigation canal, 1.1 km long 	Analysis of the quality of water in the oil, turbidity	Physical and chemical analysis.
12.	12-14 km	The road narrows, due to mountain foothills too close to the road (LHS); these may have to be cut by drilling and jackhammer.	-	To be verified with the design
		One (1) tree may be cut down at LHS located 8.4 m from the center of the road.	-	To be verified with the design
13.	14-15 km	Wide area	-	Possibly no change
14.	16 km	One (1) tree may be cut down at RHS located 8.8 m from the center of the road.	-	To be verified with the design
15.	17 km	One (1) tree may be cut down at LHS located 7.6 m from the center of the road.	-	To be verified with the design
16.	19 km +500	Road narrows to 12m due to rock formation. Removal may be carried out by drilling and jackhammer	-	To be verified with the design
17.	20 km	20 trees to be cut down at both LHS & RHS	-	To be verified with the design
18.	23 km	Irrigation canal with no water in it. Old borrow pit with sandy-gravel ground, RHS	-	Need to be replacement
19.	24 km	One (1) tree may be cut down at RHS located 7.9 m from the center of the road.	-	To be verified with the design
20.	30 km	One (1) tree may be cut down at RHS located 7.7 m from the center of the road.	-	To be verified with the design
21.	31 km	One (1) tree may be cut down at RHS located 6.5 m from the center of the road.	-	To be verified with the design
22.	31+750	Ravine	-	Need to be replacement
23.	33 km, Orto-Tokoy Reservoir	In 200 m away from the road, there is Orto-Tokoy Reservoir, water protection area is 200 m. The reservoir is a habitat of osman and	-	May require special measures for water quality protection

<b>№</b>	<b>Section</b>	<b>Description</b>	<b>Parameter</b>	<b>Comments</b>
		trout.		
24.	41 km	The road narrows between mountains, it may be necessary remove obstacles by drilling, blasting works and jackhammer.	-	To be verified with the design
25.	42 km +600	The upper water source of the Ortho-Tokoy Reservoir, from the bridge of the Bishkek-Naryn-Torugart.	Analysis of the quality of water in the oil, turbidity	Physical and chemical analysis.
	50 km, Semizbel village, Ukek tributary	Ukek tributary meets Chu river, there is an old borrow pit and asphalt plant which can be used for next 10 km	-	Outside of the project area

## Annex A2: Main Earth Work Proposed

No.	Km from	Km to	Type of earth work	Side	Length, m	Maximum width, m	Maximum height/depth t, m
1	12,260	12,800	Cut	LHS	540	10	11
2	12,860	13,000	Fill	RHS	140	20	5
3	13,120	13,940	Cut	LHS	820	10	12
4	14,060	14,280	Fill	LHS	220	30	3
5	14,700	15,200	Fill	RHS—Full width	500	40	4
6	15,420	15,780	Fill	Full width	360	30	4
7	17,340	17,920	Fill	LHS	580	40	3
8	18,300	18,360	Fill	LHS	60	30	3
9	20,200	20,280	Cut	LHS	80	10	5
10	20,360	20,460	Fill	RHS	100	30	3
11	20,980	21,000	Cut	LHS	20	10	4
12	22,760	23,000	Fill	LHS	240	30	4
13	23,220	23,320	Fill	RHS	100	30	3
14	23,380	23,680	Fill	LHS	220	40	4
15	30,040	31,220	Fill	RHS	180	30	3
16	31,680	31,900	Fill	RHS	220	30	4
17	33,680	33,740	Fill	RHS	60	30	3
18	34,040	34,100	Fill	LHS	60	30	3
19	36,740	36,820	Fill	LHS	80	30	3
20	37,240	37,380	Fill	RHS	60	30	3

**Annex A3: Outline of Culvert in Section 1**

**Culverts crossing the main road**

No. of culverts cross location	opening/diameter , m	kind of waterway	intersection angle	length , with portal walls, m	pitch of culverts	direction of waterway	requirements	
	km +							
1	2	3	4	5	6	7	8	9
1	0+284	concrete box culvert open. 1.0x1.0	irrigator	90°	23.72	0.011	from right to the left	replacing of existing culvert
2	2+681 (on turnaround 0+200)	concrete box culvert open. 0.5x0.5	irrigator	90°	19.27	0.005	from left to the right	new culvert
3	7+156	reinforced concrete pipe d=1.0	bypass	90°	17.98	0.005	from left to the right	replacing of existing culvert
4	8+159	reinforced concrete pipe d=1.0	bypass	90°	18.99	0.009	from left to the right	new culvert
5	8+550	reinforced concrete pipe d=1.0	bypass	90°	22.04	0.005	from left to the right	new culvert
6	11+543	concrete box culvert open. 1.0x1.0	irrigator	90°	18.63	0.006	from left to the right	replacing of existing culvert
7	12+909	reinforced concrete pipe d=1.5	bypass	90°	27.13	0.092	from left to the right	replacing of existing culvert
8	13+160	reinforced concrete pipe d=1.5	bypass	90°	18.78	0.005	from left to the right	new culvert (in the inlet wet well)
9	13+763	reinforced concrete pipe d=1.0	bypass	90°	17.98	0.011	from left to the right	replacing of existing culvert
10	14+259	reinforced concrete pipe d=1.0	bypass	90°	22.04	0.018	from left to the right	replacing of existing culvert
11	15+427	reinforced concrete pipe d=1.0	bypass	85°	22.04	0.049	from right to the left	replacing of existing culvert
12	16+456	reinforced concrete pipe d=1.0	irrigator	86°	17.98	0.007	from right to the left	replacing of existing culvert
13	17+300	reinforced concrete pipe d=1.0	bypass	90°	17.98	0.006	from right to the left	new culvert
14	18+326	reinforced concrete pipe d=1.0	bypass	90°	22.04	0.017	from right to the left	replacing of existing culvert
15	18+585	reinforced concrete pipe d=1.0	irrigator	90°	21.03	0.015	from right to the left	new culvert
16	20+178	reinforced concrete pipe d=1.5	bypass	88°	24.08	0.005	from right to the left	replacing of existing

Neulverts crosslocation	opening/diam m	kind of waterway	intersection angle	length , with portal walls, m	pitch of culverts	direction of waterway	requirements	
	km +							
1	2	3	4	5	6	7	8	9
								culvert
17	20+390	reinforced concrete pipe d=1.5	bypass	88°	24.08	0.008	from right to the left	replacin g of existing culvert
18	20+670	reinforced concrete pipe d=1.0	irrigator	90°	22.04	0.040	from right to the left	replacin g of existing culvert
19	21+478	reinforced concrete pipe d=1.0	bypass	90°	22.04	0.012	from right to the left	replacin g of existing culvert
20	22+255	concrete box culvert open. 6.0x3.0	bypass	87°	18.25	0.010	from right to the left	replacin g of existing culvert
21	22+502	r. c. box culvert open. 3.0x2.5	irrigation canal	85°	21.30	0.005	from right to the left	replacin g of existing culvert
22	22+575	r. c. box culvert open. 2.0x2.0	bypass	90°	23.34	0.013	from right to the left	replacin g of existing culvert
23	23+423	reinforced concrete pipe d=1.0	bypass	85°	23.07	0.040	from left to the right	replacin g of existing culvert
24	24+592	reinforced concrete pipe d=1.0	bypass	90°	18.99	0.064	from left to the right	new culvert
25	25+300	reinforced concrete pipe d=1.0	bypass	90°	17.98	0.007	from left to the right	new culvert
26	26+397	reinforced concrete pipe d=1.0	bypass	86°	22.04	0.022	from left to the right	replacin g of existing culvert
27	26+819	reinforced concrete pipe d=1.5	bypass	90°	17.98	0.019	from left to the right	replacin g of existing culvert
28	27+253	reinforced concrete pipe d=1.5	bypass	87°	18.99	0.029	from left to the right	replacin g of existing culvert
29	28+200	reinforced concrete pipe d=1.0	bypass	90°	17.98	0.011	from left to the right	new culvert
30	29+530	reinforced concrete pipe d=1.0	bypass	85°	20.02	0.043	from left to the right	replacin g of existing culvert
31	30+040	r. c. box culvert open. 2.0x2.0	bypass	86°	25.40	0.033	from left to the right	replacin g of existing culvert
32	30+515	reinforced concrete pipe d=1.5	bypass	49°	29.17	0.039	from left to the right	replacin g of existing culvert
33	30+685	reinforced	bypass	86°	21.03	0.030	from left to	replacin

Neulverts crosslocation	opening/diam , m	kind of waterway	intersection angle	length , with portal walls, m	pitch of culverts	direction of waterway	requirements	
	km +							
1	2	3	4	5	6	7	8	9
		concrete pipe d=1.0					the right	g of existing culvert
34	30+953	reinforced concrete pipe d=1.0	bypass	88°	17.98	0.027	from left to the right	replacin g of existing culvert
35	31+340	reinforced concrete pipe d=1.0	bypass	88°	17.98	0.018	from left to the right	replacin g of existing culvert
36	31+790	r. c. box culvert open. 4.0x2.5	bypass	90°	18.27	0.009	from left to the right	replacin g of existing culvert
37	32+870	reinforced concrete pipe d=1.5	bypass	87°	18.99	0.038	from left to the right	replacin g of existing culvert
38	33+805	reinforced concrete pipe d=1.5	bypass	86°	18.99	0.035	from left to the right	replacin g of existing culvert
39	34+082	reinforced concrete pipe d=1.5	bypass	90°	23.07	0.054	from left to the right	replacin g of existing culvert
40	34+309	reinforced concrete pipe d=1.5	bypass	88°	18.99	0.044	from left to the right	replacin g of existing culvert
41	34+703	reinforced concrete pipe d=1.5	bypass	80°	22.04	0.064	from left to the right	replacin g of existing culvert
42	34+892	reinforced concrete pipe d=1.5	bypass	90°	25.09	0.087	from left to the right	replacin g of existing culvert
43	35+288	reinforced concrete pipe d=1.5	bypass	87°	21.03	0.050	from left to the right	replacin g of existing culvert
44	35+469	reinforced concrete pipe d=1.5	bypass	78°	22.04	0.032	from left to the right	replacin g of existing culvert
45	35+517	reinforced concrete pipe d=1.5	bypass	90°	24.08	0.037	from left to the right	replacin g of existing culvert
46	36+148	reinforced concrete pipe d=1.0	bypass	90°	21.03	0.036	from left to the right	replacin g of existing culvert
47	36+380	reinforced concrete pipe d=1.0	bypass	90°	18.99	0.030	from left to the right	replacin g of existing culvert
48	36+584	reinforced concrete pipe d=1.0	bypass	87°	21.03	0.039	from left to the right	replacin g of existing culvert

Neulverts crosslocation n	opening/diam , m	kind of waterway	intersection angle	length , with portal walls, m	pitch of culvert s	direction of waterwa y	requirement s	
	km +							
1	2	3	4	5	6	7	8	9
49	36+757	reinforced concrete pipe d=1.5	bypass	90°	23.07	0.034	from left to the right	replacin g of existing culvert
50	37+161	reinforced concrete pipe d=1.5	bypass	83°	22.04	0.032	from left to the right	replacin g of existing culvert
51	37+329	reinforced concrete pipe d=1.5	bypass	80°	27.03	0.026	from left to the right	replacin g of existing culvert
52	37+761	reinforced concrete pipe d=1.5	bypass	81°	21.03	0.030	from left to the right	replacin g of existing culvert
53	38+461	reinforced concrete pipe d=1.0	bypass	71°	22.04	0.043	from left to the right	replacin g of existing culvert
54	38+688	reinforced concrete pipe d=1.0	bypass	90°	20.02	0.014	from left to the right	replacin g of existing culvert
55	38+878	reinforced concrete pipe d=1.5	bypass	90°	21.03	0.030	from left to the right	replacin g of existing culvert
56	39+291	reinforced concrete pipe d=1.5	bypass	90°	17.98	0.024	from left to the right	replacin g of existing culvert
57	39+410	reinforced concrete pipe d=1.0	bypass	90°	17.98	0.018	from left to the right	replacin g of existing culvert
58	40+004	reinforced concrete pipe d=1.0	bypass	90°	18.99	0.005	from left to the right	new culvert
59	40+555	reinforced concrete pipe d=1.0	ravine	90°	17.98	0.010	from left to the right	new culvert
60	40+812	reinforced concrete pipe d=1.5	bypass	90°	21.03	0.085	from left to the right	replacin g of existing culvert
61	41+069	reinforced concrete pipe d=1.5	bypass	90°	30.18	0.090	from left to the right	replacin g of existing culvert
62	41+521	reinforced concrete pipe d=1.0	ravine	90°	20.00	0.022	from left to the right	replacin g of existing culvert
63	42+888	reinforced concrete pipe d=1.0	ravine	90°	20.00	0.064	from left to the right	replacin g of existing culvert

Culvert crossing the ramp

Ne	location	opening/diam,	kind of	Intersection	length,	pitch of	direction	requirements
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	km +	km + on ramp		m.	waterwa y	angle	(with headwalls) , m	culvert s	of waterwa y	for repairing
1	2	3	4	5	6	7	8	9	10	11
1	0+234	0+017	to th e lef t	concrete box culvert 0.5x0.5	bypass	90°	16.2	0.03	from left to the right	new culvert
2	0+293	0+023	to th e lef t	concrete box culvert 0.5x0.5	bypass	82°	####	0.01	from left to the right	new culvert
3	0+426	0+026	to th e lef t	concrete box culvert 0.5x0.5	bypass	88°	9.11	0.01	from left to the right	new culvert
4	0+526	0+029	to th e lef t	concrete box culvert 0.5x0.5	bypass	90°	####	0.01	from left to the right	new culvert
5	0+590	0+031	to th e lef t	reinforced concrete pipe d=1.0	bypass	76°	####	0.03	from left to the right	new culvert
6	5+330	0+023	to th e lef t	concrete box culvert 0.5x0.5	bypass	90°	####	0.01	from right to the left	new culvert

**Annex B - List of Local Attendees in the Public Consultation in Balykchy**

17 Mar. 2016

**Attendance sheet:**

<b>No.</b>	<b>Full name</b>	<b>Position</b>	<b>Place of residence / Telephone</b>	<b>Signature</b>
1	Ustabaev J.K.		Kyzyl-Oi village / 0557 909073	/signed/
2	Duishonkan uulu		Kozhomkul village /0770 306589	/signed/
3	Otunchiev U.Sh.	Head of Suusamyr village authority	Suusamyr village /0551 156263	/signed/
4	Ashyr uulu Chyngyzbek	Electrician, SUES	Tunuk village, 0770 186788	/signed/
5	Takyrbasheva E.	Head of FEO, village authority	Suusamyr village /0773 439648	/signed/
6	Alymkulova R.	Cashier of village authority	Suusamyr village /0770 269951	/signed/
7	Asanaliyev T.	Head of club of Suusamyr v/a	Suusamyr village /0773 201972	/signed/
8	Akylbekov T.	Farmer	Kyzyl-Oi village / 0552 109920	/signed/
9	Ismailov M.	Municipal property specialist	Suusamyr village /0772 678554	/signed/
10	Tazhybekov N.		Kyzyl-Oi village /0555 556637	/signed/
11	Ryspaev M.	Elder	Kyzyl-Oi village /0559 251257	/signed/
12	Kochorov Satybaldy	Inspector of MOS	Suusamyr village /0777 329499	/signed/
13	Kulserekov M.	Land specialist	Suusamyr village /0777 326824	/signed/
14	Murataliev B.		Kozhomkul village /0550 797918	/signed/

Список присутствующих

ФИО	Должность	Место проживания	Подпись
Кутянов Б.С.	Орфо-Тонко-аппарат	мос Орфо-Тонко 07762810.04	
Борданин В.И.	МОН Тазовик	г. Тазовик 0778351980	
Менделеев А.П.	зав. отделе	г. Балахта, 070531798	
Медведев Б.	нач. отд. ГТС Орфо-Тонко	г. Балахта 0742111003	
Мухометов С.Д.	засек. аппар. с. Балки	г. Балахта 070771153	
Маданова Б.Б.	м. спец. аппаратура	г. Балахта 0749304414	
Толмачев В.	Директор "Водоканал"	г. Балахта 0772690380	
Морозов К.	Зав. отд. Зернохв.	г. Балахта 0773681353	
Андреев И.	камен	г. Балахта 0755284771	
Ойекова Т.С.	нач. УОБ	г. Балахта	
Андреев Л.	Балки РЭС	г. Балахта 0772400834	

## **Annex C – Written Comments, Recommendations and Questions**

### **1. Name: Bermet Madanova**

Residential address: 25 Sultanov Street

Proposals concerning the road rehabilitation project:

***Contractor needs to arrange sidewalks on both sides of the Naryn highway including lighting, lay sleeve pipes to be used for utility purposes later.***

Questions related the road rehabilitation project:

***As the road is going to be the road of Category (B) II, do we need to clear out whether 16 meters area on both sides of the road to keep it free?***

### **2. Name: A.T. Kenenbaeva**

Residential address: Balykchy town

Proposals concerning the road rehabilitation project:

***Asphalt concrete mixing plant should be arranged far from the territory of the “Issyk-Kul” Biosphere Zone.***

Questions related the road rehabilitation project:

***Where will asphalt concrete mixing plant be located?***

***Type and place of origin of planting material***

***Where will vehicles be refueled and repaired?***

***Is the Contractor going to plant new trees instead of cut?***

### **3. Name: B.S. Kutmanov**

Residential address: Orto-Tokoy Village

Proposals concerning the road rehabilitation project:

***Contractor needs to renew the bridge over the channel feeding water to Tash-Sarai village without interrupting water supply process.***

***We shall highly appreciate if you keep on providing information about the project implementation process.***

***Removed poles of power transmission lines should be recovered.***

***We ask you to repair 3 km road connecting the Orto-Tokoy Village with the road to be rehabilitated.***

***We ask you to remove the rock on the way to Orto-Tokoy Village***

Questions related the road rehabilitation project:

***Will the Contractor install lighting inside the Tash-Sarai Village?***

***Will the Contractor repair at least 25 meters of secondary roads connected with the highway to be rehabilitated?***

### **4. Name: Ozubekova Tinatin**

Residential address: Orto-Tokoy Village

Proposals concerning the road rehabilitation project:

***As we have neither schools, nor kindergartens, we please you to repair the road going to Orto-Tokoy Village from the highway to be rehabilitated.***

***As Orto-Tokoy Village belongs to the Balykchy authority and is located 18 km away from Balykchy town, we please you to repair 3 km road connecting the Orto-Tokoy Village with the road to be rehabilitated.***

Questions related the road rehabilitation project:

**5. Name: K. Sheishenov**

Residential address: 6 Vostochnaya Street, Balykchy

Proposals concerning the road rehabilitation project:

***This is good project, I wish you every success in you work***

Questions related the road rehabilitation project:

***No questions***

**6. Name: Karypbai Borbashev**

Residential address: "Tazalyk" Municipal Enterprise

Proposals concerning the road rehabilitation project:

***The Contractor needs to arrange elevated bridge for railway on the intersection of railway and highway to be rehabilitated. Install at least 4 traffic lights around that place***

Questions related the road rehabilitation project:

***Who will pay for removal of PTL poles and how private properties of rural people to be moved during the construction of road be compensated?***

***Will street lighting be installed?***

**7. Name: S.D. Mukambetov**

Residential address: 145 Alymkanov Street, Balykchy

Proposals concerning the road rehabilitation project:

***Please provide for traffic lights within the city area.***

Questions related the road rehabilitation project:

***Does the project provide for ditches network within the city area?***

## **Annex D – Transcript of the video recording in Balykchy**

### **Mr. Ruslan, IPIG/MoTR:**

*Now the category of the road is the 3<sup>rd</sup> category. It will be transformed into the 2<sup>nd</sup> category. Width of the road, its shoulder will be changed. Those places, where stone falls happen, will be protected through construction of high concrete walls protecting the road from stone falls.*

*Here is Mr. Almaz, ecologist of the ADB and Mr. Sam, representative of KOCKS Company, who is preparing environmental report, Mr. Asylbek, environmental specialist of the MoTR and me, Mr. Ruslan Satylbaldiev, representative of the IPIG/MoTR.*

*We have come here to discuss environmental matters. This is Mr. Sam, environmental specialist of ADB, who will tell you about possible environmental impacts and ways to mitigate the same.*

*Now, please pay attention to the speech of Mr. Sam.*

**Mr. Sam's speech: 12:35 (first video ends)– second video 1:00**

### **Representative of Orto-Tokoy v/a:**

*There is a rock on the way to Orto-Tokoy, will you remove it?*

### **Mr. Asylbek, IPIG/MoTR:**

*We recommend that you should apply in written to the MoTR with your request through describing your concerns.*

### **Mr. Asylbek, IPIG/MoTR:**

*It is a fact that the Project will start in a year. However, we do not know what time it will start, either in spring or in summer. So, take your time to tell us about your requests/concerns in written in order we would be able to include them into the Project.*

### **Representative of Orto-Tokoy v/a:**

*There is an area close to Tash-Sarai village, where stone fall occurs frequently.*

### **Mr. Ruslan, IPIG/MoTR:**

*Contractor will never perform blasting operations in regard to rocks/mountains, if they are located far from the road to be reconstructed.*

### **Person wearing Kyrgyz national headwear (Karypbai Borbashev):**

*Where will the asphalt-mixing plant be located?*

### **Mr. Ruslan, IPIG/MoTR:**

*We are currently conducting feasibility study during which we shall determine location of such plant. Nevertheless, they will be located far from settlement areas.*

### **Person wearing Kyrgyz national headwear:**

*There is one asphalt-mixing plant near the Kok-Moinok area. You had better use that.*

### **Mr. Ruslan, IPIG/MoTR:**

*That asphalt mixing plant belongs to Chinese Company. We currently do not know who the Contractor is. After tender results, the Contractor will be identified. If it is Chinese company, then of course they will use that asphalt mixing plant.*

**Mayor of Balykchy Mayor's Office:**

*How many lanes will be there?*

**Mr. Ruslan, IPIG/MoTR:**

*As the road will be the 2<sup>nd</sup> category road, there will be 2 lanes. The road is divided into 4 types. Lane width will be about 3.5 – 3.75 m, carriageway width – 7.00-7.50.*

*As the traffic in the Bishkek-Osh highway increased, the President of the Kyrgyz Republic Almazbek Sharshenovich instructed to divert traffic to other highways. Due to it, ADB is planning to reconstruct a highway from Balykchy to Suusamyr/Too-Ashuu. ADB is currently conducting feasibility study.*

*Please, make sure that all your requests are done in written before preparation of documentation, otherwise it will too late to include any request into the project (irrigation pipes to cross the reconstructed road, traffic lights etc.).*

**Woman, representative of Orto-Tokoy Village Authority:**

*Orto-Tokoy Village belongs to the Balykchy authority and is located 18 km away from Balykchy town. As we have neither schools, nor kindergartens, our children come to Balykchy town to study. We please you to repair 3 km road connecting the Orto-Tokoy Village with the road to be rehabilitated.*

**Mr. Ruslan, IPIG/MoTR:**

*The project shall cover the road and road-related structures. As for the 3 km secondary road you are asking to rehabilitate, it is not included in the project. Nevertheless, if the Contractor saves money during reconstruction of that part of the road, he might help you to solve that issue. All the same, make sure that it is included in your protocols and written requests.*

*Traffic lights are part of the project. Make sure that you specify the place where it should be installed in your written requests. Actually, traffic lights shall be installed according to standards and number of people to cross the street. If there are few people, the Contractor shall rather arrange pedestrian crossing (zebra). As for places near schools, where children cross the street, the Contractor shall install traffic lights.*

*You have ring road over there; you may request the Contractor to install traffic lights there and on the place where people cross the street to reach the oil refinery and warehouses.*

**Mayor of Balykchy Mayor's Office:**

*Will the Contractor arrange for the sewage system?*

**Mr. Ruslan, IPIG/MoTR:**

*You may instruct the Clean Water Authority to provide schemes of sewage system's pipes to be laid under the road to the MoTR so the latter could be able to include it into the Project.*

**Mayor of Balykchy Mayor's Office is talking with people came from different villages:**

*In spite of whether sewage system is specified in the General Plan or not and we want it or do not want it, we will surely need it in near future. We shall make sure that sewage, irrigation and clean water system's pipes are provided for in the project. Therefore, we need to prepare details.*

**Karypbai Borbashev:**

*We have understood environmental matters and measures to mitigate negative impacts very good thanks to presentation. Thank you very much. We have experience with China Road*

*Company, which removed, shifted and re-installed electric poles during construction of the road. My question is who will cover expenses related with such activity during reconstruction of the road under consideration?*

*You were telling during presentation that if any house, shed or similar structure will be removed due to road, its owner would be compensated. I wonder whether the Contractor will compensate the entire cost of such structure.*

**Mr. Ruslan, IPIG/MoTR:**

*That matter has been provided for in the Project. Owners of structures to be removed because of road will be compensated. Specialists will identify the cost of the structure, the Government shall receive funds and distribute to owners of destroyed/removed structures.*

*We remember the case with Kyz-Kuyoo dwellers. They asked for compensation and when the Government came with compensation, they said that the Government calculated the cost according to prices of 2010. They requested the Government to calculate according to prices of 2011 as inflation took place within a year. When the Government came with compensation according to prices of 2011, dwellers said that they should be paid by 15 000 USD. At the end, the road was left without reconstruction.*

*Currently the feasibility study is being made. The study shall identify what kind of structure will be removed, how much it costs, who is the owner of that structure, how many electric poles will be removed – everything will be identified and provided to the Contractor. Here I should underline that houses, fences, sheds – any private structures will be compensated from the Kyrgyzstan budget.*

*In addition, I would like to inform you that the Government adopted a Resolution, under which no land plot will be leased, sold or occupied by any structure within 32 m area away from the center of the road until the road has been completely reconstructed.*

**Karypbai Borbashev:**

*If you go westward from the ring road, you may notice that there is railway crossroad. It would be very good if you arranged elevated bridge for railway on the intersection of railway and highway to be rehabilitated.*

*Contractor must install a traffic light on the place close to the ring road and arrange for sidewalks.*

*What can you say about electric lighting?*

**Mr. Ruslan, IPIG/MoTR:**

*Good notice. Make sure that it is included in the minutes.*

*Electric lighting will be installed inside villages. However, make sure that you have specified that in your written requests so that designers could study it.*

**Representative of Tash-Sarai village:**

*There is irrigation channel in Tash-Sarai village used by people, to which water comes through the pipe laid under the road. How will you construct the road without interruption of water supply?*

**Mr. Ruslan, IPIG/MoTR:**

*The Contractor shall lay a new pipe near the existing one. When it is laid, it shall divert water to the new pipe and remove old one. So, water supply will not be interrupted.*

**Representative of Tash-Sarai village:**

*There is a house in Tash-Sarai village, which was built illegally. Will it be resettled?*



Mr. Ruslan, IPIG/MoTR:

*According to obtained information, no house will be removed in this section. There are specialists identifying houses/structures to be removed.*

Representative of Tash-Sarai village:

*Will the Contractor hire local people?*

Mr. Ruslan, IPIG/MoTR:

*Yes, of course. However, there is one fact to be taken into account; we do not know who will become a Contractor. If Chinese Company wins the tender, I am afraid that local people won't be hired, because you know that Chinese workers start working early in the morning and work till the very evening without rest. Our workers might not be able to withstand such condition.*

Representative of Tash-Sarai village:

*There are secondary roads inside villages. What section of such roads will be asphalt coated starting from the junction with the highway?*

Mr. Ruslan, IPIG/MoTR:

*About 15-25 m of secondary roads inside villages will be asphalt coated.*

Karypbai Borbashev:

*Where will you set pits?*

Mr. Ruslan, IPIG/MoTR:

*Currently feasibility study is being made, which shall identify all the pits along the road, identify whether they are private or public, whether their materials are useful or not.*

Karypbai Borbashev:

*After having excavated the pits, will you fill them back? What about debris, how will you remove it?*

Mr. Ruslan, IPIG/MoTR:

*All construction debris will be filled up and compacted as required.*

Mr. Ruslan, IPIG/MoTR:

*Address all your proposals/requests to the MoTR in written and underline that they are related to the Road Reconstruction Project.*

*I strongly hope that head of village authorities, mayors will render great assistance to us in our work.*

Mayor of Balykchy Mayor's Office:

*As for matters related to the town, I'll do my best to help you. As for village authorities, there are heads thereof, who I believe will help you as well.*

## Annex E – Results of laboratory analysis

### 1. Air quality

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ӨКМӨТҮНӨ КАРАШТУУ КУРЧАП ТУРГАН ЧӨЙРӨНҮ КОРГОС  
ЖАНА ТОКОЙ ЧАРБАСЫ БОЮНЧА МАМЛЕКЕТТИК АГЕНТТИКТИН  
ЭКОЛОГИЯЛЫК МОНИТОРИНГ БАШКАРМАЛЫГЫ

УПРАВЛЕНИЕ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ГОСУДАРСТВЕННОГО АГЕНТСТВА ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ И ЛЕСНОГО  
ХОЗЯЙСТВА ПРИ ПРАВИТЕЛЬСТВЕ КЫРГЫЗСКОЙ РЕСПУБЛИКИ

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

тел. (996-312) 54-07-65, факс: 54-07-66

## ПРОТОКОЛ АНАЛИЗА ПРОБ АТМОСФЕРНОГО ВОЗДУХА

№ 220-235

**1. Наименование предприятия, организации (заявитель):**

Иссык-Кульская, Нарынская, Чуйская области  
Автомобильная «Балыкчы – Кочкор – Жумгал – Суусамыр»

**2. Место отбора проб:**

<u>220-Кольцевая г.Балыкчы(нач.уч.)</u>	<u>228-с.Дыйкан(школа)</u>
<u>221-с.Таш-Сарай (жил.дом)</u>	<u>229-с.Байзак(маг.Адилет)</u>
<u>222-с.Кок-Жар(маг.Рахат)</u>	<u>230-с.Чаяк (дом ветеранов)</u>
<u>223-с.Чекилдек (маг.Ак-Жол)</u>	<u>231-с.Кызыл-Жылдыз(спорт.компл.)</u>
<u>224-с.Ак-Учук (мечеть)</u>	<u>232-с.Кызыл-Ой (школа)</u>
<u>225-с.Жумгал (школа)</u>	<u>233-с.Кожомкул (школа)</u>
<u>226- с.Куйручук(маг.Азамат)</u>	<u>234-с.Суусамыр(мил.пункт)</u>
<u>227-с.Туголсай (маг.Кутман)</u>	<u>235-с.Тунук (школа)</u>

**3. Цель отбора проб:** Определение концентрации загрязняющих веществ в атмосферном воздухе

**4. Кем отобраны пробы:** гл. спец. Райкеевой Р.Н., спец. Жаманакоевой А.Н.

**5. Дата и время отбора проб:** 30.11.- 02.12.2015г., с 10ч.00мин.-17ч.00мин.

**6. Характер отобранных проб:** разовый

**7. Метод анализа:** 1. Руководство по контролю загрязнения атмосферы РД 52.04. 186-89

**8. Даты проведения испытаний:** 04.12.- 10.12.2015г.

стр.1 из 3

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ӨКМӨТҮНӨ КАРАШТУУ КУРЧАП ТУРГАН ЧӨЙРӨНҮ  
КОРГОО ЖАНА ТОКОЙ ЧАРБАСЫ БОЮНЧА МАМЛЕКЕТТИК АГЕНТТИКТИН  
ЭКОЛОГИЯЛЫК МОНИТОРИНГ БАШКАРМАЛЫГЫ

УПРАВЛЕНИЕ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ГОСУДАРСТВЕННОГО АГЕНТСТВА ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ И ЛЕСНОГО  
ХОЗЯЙСТВА ПРИ ПРАВИТЕЛЬСТВЕ КЫРГЫЗСКОЙ РЕСПУБЛИКИ

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

тел. (996-312) 54-07-65, факс: 54-07-66

ПАСПОРТ НА ПРОБУ

1. Наименование, адрес объекта: Сельск. Издешная, Нарынская  
Сельская община  
автострога "Баймакчи - Исхор-Исхорал-  
Сурсаинир"
2. Место отбора проб: 1. Жалыкбая г. Баймакчи, 2. с. Таш-Сарай  
(напр. жам. доглов), 3. с. Кок-Исар (наг. "Рахат"), 4. с. Кендеш  
(наг. "А. - Вод"), 5. с. А. - Жук (мехов), 6. с. Исхорал (мехов),  
7. с. Кудук (наг. "Вод"), 8. с. Тугалсай (наг. "Кудук"),  
9. с. Динсан (мехов), 10. с. Байрак (наг. "Вод"), 11. с. Чак (дм  
ветер), 12. с. Исхор-Исхорал (спр. мид), 13. с. Исхор-Ос (мехов), 14. с. Коканур  
(мехов), 15. с. Сурман (мех. мид), 16. с. Жук (мехов).
3. Цель отбора: Определение концентрации загрязнителей веществ в атмосфере воздуха
4. Характер отобранных проб: розовый
5. Условия окружающей среды: ясно, солнечно
6. Условие отбора проб:
7. Дата отбора проб: 30.11 - 02.12.2015г., с 10<sup>00</sup> - 14<sup>00</sup>
8. Метод отбора проб: 1. РД 52.04.186-89 "Руководство по контролю загрязнения атмосферы".  
2. ГОСТ Р 50820-95 Оборудование газоочистное и пылеулавливающее. Методы определения  
запыленности газопылевых потоков.

Представитель УЭМ

(должность, фамилия)

Госинспектор

(должность, фамилия)

Представитель предприятия

(должность, фамилия)

Жамал  
компания  
КОСБ

Ген. спец. Райс  
спец. Райс

Райсеева Р.Н.  
Маммаева А.Н.

Аманжол Н.

1 стр из 1

Наимен-е ингред-в	Ед. изм.	Данные анализа по точкам												
		220	Прев. ПДК макс. раз.	221	Прев. ПДК макс. раз.	222	Прев. ПДК макс. раз.	223	Прев. ПДК макс. раз.	224	Прев. ПДК макс. раз.	225	Прев. ПДК макс. раз.	ПДК макс. раз.
Диоксид серы	мг/м <sup>3</sup>	0,05± 0,006	-	<0,05	-	<0,05	-	<0,05	-	<0,05	-	<0,05	-	0,5
Диоксид азота	мг/м <sup>3</sup>	0,022± 0,004	-	0,027± 0,005	-	<0,02	-	0,023± 0,004	-	0,017± 0,003	-	0,018± 0,003	-	0,085
Взв.вещ-ва (пыль)	мг/м <sup>3</sup>	0,29± 0,07	-	<0,26	-	<0,26	-	0,28± 0,07	-	0,28± 0,07	-	<0,26	-	0,5
Наимен-е ингред-в	Ед. изм.	226	Прев. ПДК макс. раз.	227	Прев. ПДК макс. раз.	228	Прев. ПДК макс. раз.	229	Прев. ПДК макс. раз.	230	Прев. ПДК макс. раз.	231	Прев. ПДК макс. раз.	ПДК макс. раз.
Диоксид серы	мг/м <sup>3</sup>	<0,05	-	<0,05	-	<0,05	-	0,05± 0,006	-	<0,05	-	<0,05	-	0,5
Диоксид азота	мг/м <sup>3</sup>	<0,02	-	0,017± 0,003	-	0,029± 0,005	-	0,025± 0,005	-	0,015± 0,003	-	0,011± 0,002	-	0,085
Взв.вещ-ва (пыль)	мг/м <sup>3</sup>	0,28± 0,07	-	0,28± 0,07	-	<0,26	-	0,28± 0,07	-	0,28± 0,07	-	<0,26	-	0,5

стр.2 из 3

Наимен-е ингред-в	Ед. изм.	Данные анализа по точкам										ПДК макс. раз.
		232	Прев. ПДК макс. раз.	233	Прев. ПДК макс. раз.	234	Прев. ПДК макс. раз.	235	Прев. ПДК макс. раз.			
Диоксид серы	мг/м <sup>3</sup>	0,03± 0,004	-	0,043± 0,005	-	0,04± 0,005	-	0,057± 0,007	-			0,5
Диоксид азота	мг/м <sup>3</sup>	0,021± 0,004	-	0,027± 0,005	-	0,031± 0,006	-	0,035± 0,006	-			0,085
Взв.вещ-ва (пыль)	мг/м <sup>3</sup>	<0,26	-	0,28± 0,07	-	<0,26	-	<0,26	-			0,5

Главный специалист

*Риф*

Т. Садыкбеков

Исполнитель не несет ответственности, если проба отобрана самим заказчиком  
Перепечатка протокола без разрешения испытательной лаборатории запрещена  
Протокол испытаний касается только образцов, подвергнутых испытаниям

стр.3 из 3

**КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ӨКМӨТҮНӨ КАРАШТУУ  
КУРЧАП ТУРГАН ЧӨЙРӨНҮ КОРГОО ЖАНА ТОКОЙ ЧАРБАСЫ БОЮНЧА МАМЛЕКЕТТИК  
АГЕНТТИКТИН ЭКОЛОГИЯЛЫК МОНИТОРИНГ БАШКАРМАЛЫГЫ**

**УПРАВЛЕНИЕ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ГОСУДАРСТВЕННОГО АГЕНТСТВА ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ И  
ЛЕСНОГО ХОЗЯЙСТВА ПРИ ПРАВИТЕЛЬСТВЕ КЫРГЫЗСКОЙ РЕСПУБЛИКИ**

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

тел. (996-312) 54-07-65, факс: 54-07-66

05/178 от 03.12.2015г

**Директору  
KOCKS CONSULT GMBH  
Карстен Гризе**

Управление экологического мониторинга ГАООС и ЛХ при ПКР не может выдать результаты по окиси углерода (CO) в атмосферном воздухе по причине непригодности газоанализатора ПГА-200.

Справка о непригодности прибора ПГА-200 прилагается на 1 л.

**Начальник**



**Б.Маматаиров**



## 2. Water quality

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ӨКМӨТҮНӨ КАРАШТУУ  
КУРЧАП ТУРГАН ЧӨЙРӨНҮ КОРГОО ЖАНА ТОКОЙ ЧАРБАСЫ БОЮНЧА  
МАМЛЕКЕТТИК АГЕНТТИКТИН ЭКОЛОГИЯЛЫК МОНИТОРИНГ БАШКАРМАЛЫГЫ

УПРАВЛЕНИЕ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ГОСУДАРСТВЕННОГО АГЕНТСТВА ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ И  
ЛЕСНОГО ХОЗЯЙСТВА ПРИ ПРАВИТЕЛЬСТВЕ КЫРГЫЗСКОЙ РЕСПУБЛИКИ

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

тел. (996-312) 54-07-65, факс: 54-07-66

### Аттестат аккредитации

№ KG 417/КЦА.ИЛ.049

от 05. 04. 2013 г.

\*-метод не аккредитован

### ПРОТОКОЛ АНАЛИЗА ПРОБ ВОДЫ

№ 513-519

1. Наименование предприятия, организации (заявитель);  
Иссык-кульская, Нарынская, Чуйская обл., автодорога Балыкчи-Кочкор-  
Жумгал- Суусамыр.
2. Место отбора проб;  
513- р. Чу, с. Таш-Сарай (мост)  
514-р. Чу, гидрост  
515-р. Дзюон-Арык, с. Кок-Жар(мост)  
516-р. Жумгал, с. Чаек (мост)  
517- р. Кокомерен, с. Арал (мост)  
518- р. Кокомерен, с. Кызыл-Ой (мост)  
519-р. Каракол, с. Кожомкул (мост)
3. Цель отбора проб; Определение прозрачности, нефтепродуктов
4. Кем отобраны пробы; Спец. УЭМ Жаманакоевой, Райкеевой
5. Дата и время отбора проб; 30.11-02.12.2015 г., 10.00-17.00
6. Дата(ы) проведения испытаний; 02.12.2015 г.

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ӨКМӨТҮНӨ КАРАШТУУ КУРЧАП ТУРГАН ЧӨЙРӨНҮ  
КОРГОО ЖАНА ТОКОЙ ЧАРБАСЫ БОЮНЧА МАМЛЕКЕТТИК АГЕНТТИКТИН  
ЭКОЛОГИЯЛЫК МОНИТОРИНГ БАШКАРМАЛЫГЫ

УПРАВЛЕНИЕ ЭКОЛОГИЧЕСКОГО МОНИТОРИНГА  
ГОСУДАРСТВЕННОГО АГЕНТСТВА ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ И ЛЕСНОГО  
ХОЗЯЙСТВА ПРИ ПРАВИТЕЛЬСТВЕ КЫРГЫЗСКОЙ РЕСПУБЛИКИ

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

тел. (996-312) 54-07-65, факс: 54-07-66

### ПАСПОРТ НА ПРОБУ (ВОДА)

1. Наименование, адрес объекта: Иссык-Кульское, Наринская,  
Чуйская области  
автоматического «Валентин - Кокор - Иссык - Суусамыр»
2. Место отбора проб: 1. р. Чу, с. Таш-Сарай (мост), 2. р. Чу,  
гидропост, 3. р. Дысок-Арк, с. Кок-Тар (мост),  
4. р. Иссык-Куль, с. Таш (мост), 5. р. Кокор-Иссык, с. Таш  
(мост), 6. р. Кокор-Иссык, за с. Кокор-Иссык (мост),  
7. р. Каракол, за с. Кокор-Иссык (мост)
3. Цель отбора: \_\_\_\_\_
4. Характер отобранных проб: разовой
5. Условия окружающей среды: ясно, солнечно
6. Дата отбора проб: 30.10 - 02.11.2015г., с 10.00 - 18.00
7. Метод отбора проб: ГОСТ Р 51592-2000 «Вода. Общие требования к отбору проб»;  
НВН 33-5.3.01-85 Инструкция по отбору проб для анализа сточных вод

Представитель УЭМ

(должность, фамилия)

Госинспектор

(должность, фамилия)

Представитель предприятия много  
(должность, фамилия) компания Кокор

Специалист М.А. Маманов А.Н.

Алишова Н.

Наименование ингредиентов	Ед. изм.	Данные анализа по точкам							ПДК		НД
		513	514	515	516	517	518	519	+	++	
Прозрачность*	См.	41	37	43	36	40	37	32			СЭВ ч.1 М. 1977
Нефтепродукты	мг/л	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05	<0,05	0,05	0,3	ПНД Ф 14.1:2.4.12 8-98

Главный специалист



С.В.Янова

+Перечень рыбохозяйственных нормативов ПДК и ОБУВ вредных веществ для воды водных объектов, имеющих рыбохозяйственное значение. Контроль качества поверхностных вод, Госкомитет России по рыболовству, Москва 1999 г

++ГН 2.1.5.1315-03, ПДК химических веществ в воде водных объектов хозяйственного и культурного водопользования, Минздрав России, Москва, 2003 г.

Исполнитель **не несет ответственности**, если проба отобрана самим заказчиком.  
Перепечатка протокола без разрешения испытательной лаборатории **запрещена**.  
Протокол испытаний касается **только** образцов, подвергнутых испытаниям.



### 3. Noise

Аттестат аккредитации Кыргызского центра аккредитации  
№KG 41/КЦА .И.Л.097 от 06.10.2010г.

Группа по контролю физических факторов Департамента госсанэпиднадзора  
Министерства здравоохранения Кыргызской Республики

**ПРОТОКОЛ ИЗМЕРЕНИЕ ШУМА**  
№ 81 от « 03 » декабря 2015 г.

Юридическое лицо, индивидуальный предприниматель или физическое лицо, где  
производятся измерения КОКС проект АБР ТА 48401-002

(наименование и юридический адрес)

Объект, где производятся измерения. Альтернативия автодорога Север-Юг  
(наименование, фактический адрес)

Балыкчы-Кочкор-Чаек-Суусамыр ч-з суусамыр

Наименование средств измерений и сведения о государственной поверке:

Наименование средства измерения	Номер	Свидетельство о поверке		Поверено до
		номер	дата	
Октава 101А	№ 04А445	№592	16.03.2015г.	16.03.2016г.

1. Нормативная документация, в соответствии с которой проводились измерения

СН 2.2.4/2.1.8.562-96 «Шум на рабочих местах, в помещениях жилых, общественных  
зданий и на территории жилой застройки»

Источники физических факторов и их характеристики:  
автомашины

общее количество страниц 3 : страница 1

Результаты измерений:

Результаты измерений:																			
№	Место измерений	Характер шума						Уровни звукового давления в дБ в октавных полосах со среднеметрическими частотами в Гц										Уров ень звук а (дБ А)	
		По спектру		По временны м				31,5	63	125	250	500	1000	2000	4000	8000			
		Широкопол.	Тональный	Постоянный	Колебл.	Прерывистый	Импульсный												
1	2	3	4	6	7	8	9	10	11	12	13	14	15	16	17	20			
1	Г. Балыкчы	+			+												43,1	Факт	
																	70	пДУ	
																			прев
2	С. Таш-Сарай	+			+												40,2	факт	
																	70	пДУ	
																			прев
3	С.Кок-Жар	+			+												57	факт	
																	70	пДУ	
																		прев	
4	С.Чекилдек	+			+												68,1	Факт	
																	70	пДУ	
																			прев
5	С.Ак-Учук	+			+												67,3	Факт	
																	70	пДУ	
																			прев
6	С.Жумгал	+			+												69	факт	
																	70	пДУ	
																			прев
7	С.Куйручук	+			+												58	факт	
																	70	пДУ	
																			прев
8	С.Туголсай	+			+												53	факт	
																	70	пДУ	
																			прев
9	С.Дыйкан	+			+												42,7	Факт.	
																	70	пДУ	
																			прев
10	С.Байзак	+			+												63,2	факт	
																	70	пДУ	
																			прев
11	С.Чаек.	+			+												53	факт	
																	70	пДУ	
																			прев
12	Конец с. Кызыл Жылдыз	+			+												55	факт	
																	70	пДУ	
																			прев
13	с.Кызыл-Ой	+			+												52	факт	
																	70	пДУ	
																			прев

общее количество страниц \_3\_: страница \_2\_

Результаты измерений:

№	Место измерений	Характер шума					Уровни звукового давления в дБ в октавных полосах со среднеметрическими частотами в Гц											Уров нь звук а (дБ А)	
		По спектру		По временны м			31,5	63	125	250	500	1000	2000	4000	8000				
		Широкопол.	Тональный	постоянный	Колесб.	прерывистый										импульсный			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	20		
14	С.Кожомкул	+				+											42	Факт	
																	70	ПДУ	
																			прев
15	С.Суусамыр	+				+											55	факт	
																	70	ПДУ	
																			прев
16	С.Тунук	+				+											54	Факт	
																	70	ПДУ	
																			прев
		+				+													
		+				+													
		+				+													
		+				+													
		+				+													

Уполномоченный представитель объекта, присутствующий при проведении измерений:  
фамилия, имя, отчество, должность Асаналиева Н. Эколог проекта  
подпись \_\_\_\_\_

Измерения проводил(и)	Должность	ФИО	Подпись
Руководитель лаборатории:	Санитарный врач	Арзыкулов Ж.Т.	

Протокол составляется в двух экземплярах, 1-й экземпляр выдается по месту требования, 2-й экземпляр остается в лаборатории.

**Заключение По результатам измерений уровень шума вдоль дороги не превышает предельно-допустимого не обнаружены.**

Основание: СН 2.2.4/2.1.8.562-96 «Шум на рабочих местах, в помещениях жилых, общественных зданий и на территории жилой застройки»

Санитарный врач \_\_\_\_\_

Арзыкулов Ж.Т.

общее количество страниц 3 : страница 3

#### 4. Vibration

Аттестат аккредитации Кыргызского центра аккредитации  
№KG 41/КЦА .ИЛ.097 от 06.10.2010г.

Группа по контролю физических факторов Департамента госсанэпиднадзора  
Министерства здравоохранения Кыргызской Республики

#### ПРОТОКОЛ ИЗМЕРЕНИЕ ВИБРАЦИИ

№ 82 от «03» декабря 2015 г.

Юридическое лицо, индивидуальный предприниматель или физическое лицо, где  
производятся измерения КОСКС проект АБР ТА 48401-002

(наименование и юридический адрес)

Объект, где производятся измерения Альтернативный автодорога Север-Юг

(наименование, фактический адрес)

Балыкчы-Кочкор-Чаек-Суусамыр ч-з суусамыр

Наименование средств измерений и сведения о государственной поверке:

Наименование средства измерения	Номер	Свидетельство о поверке		Поверено до
		номер	дата	
Октава 101в	№ 04А445	№ВА-06-05 7551	02.12.2014г.	02.12.2015г.

1. Нормативная документация, в соответствии с которой проводились измерения  
СН 2.2.4/2.1.8.566-96 "Производственная вибрация, вибрация в помещениях жилых  
и общественных зданий"

Источники физических факторов и их характеристики:

Грузовые автотранспортные средства и производственные оборудования завода

общее количество страниц 3; страница I

Результаты измерений:

Результаты измерений.																		
№	Место измерений	Характер шума						Уровни звукового давления в дБ в октавных полосах со среднеметрическими частотами в Гц									Уровень звука (дБА)	
		По спектру		По временным														
		Широкого д.	Тональный	Постоянный	Колебл.	прерывистый	импульсный			1,0	2,0	4,0	8,0	16,0	31,5	63		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	20	
1	Г. Балыкчы																92,4	Факт
																	108	ПДУ
																	-	прев
2	С. Таш-Сарай																91,7	Факт
																	108	ПДУ
																	-	прев
3	С.Кок-Жар																90	Факт
																	108	ПДУ
																	-	прев
4	С.Чекилдек																91,1	Факт
																	108	ПДУ
																	-	прев
5	С.Ак-Учук																91,2	Факт
																	108	ПДУ
																	-	прев
6	С.Жумгал																92	Факт
																	108	ПДУ
																	-	прев
7	С.Куйручук																91	Факт
																	108	ПДУ
																	-	прев
8	С.Туголсай																92,3	Факт
																	108	ПДУ
																	-	прев
9	С.Дыйкан																95	Факт
																	108	ПДУ
																	-	прев
10	С.Байзак																88	Факт
																	108	ПДУ
																	-	прев
11	С.Чаек.																90	Факт
																	108	ПДУ
																	-	прев
12	Конец с. Кызыл Жылдыз																87	Факт
																	108	ПДУ
																	-	прев
13	с.Кызыл-Ой																88	Факт
																	108	ПДУ
																	-	прев
14	С.Кожомкул																86	Факт
																	108	ПДУ
																	-	прев


бщее количество страниц \_3\_ : страница \_2\_



### Результаты измерений:

[illegible]

уполномоченный представитель объекта, присутствующий при проведении измерений:  
 фамилия, имя, отчество \_\_\_\_\_ должность эколог Жаппалиева И. А.  
 подпись \_\_\_\_\_

Измерения проводил(и)	Должность	ФИО	Подпись
Санитарный врач	Санитарный врач	Арзыкулов Ж.Т.	

Заключение: Согласно инструментальным замерам вибрация непостоянное, уровень вибрации по скорости на измеренных точках не превышает предельно-допустимого уровня.

Основание: Санитарные нормы СН 2.2.4/2.1.8.566-96 "Производственная вибрация, вибрация в помещениях жилых и общественных зданий"

Санитарный врач \_\_\_\_\_ Арзыкулов Ж.Т.

общее количество страниц \_3\_: страница \_3\_

**КЫРГЫЗ РЕСПУБЛИКАСЫНЫН  
МАДАНИЯТ, МААЛЫМАТ ЖАНА  
ТУРИЗМ МИНИСТРЛИГИ**



**МИНИСТЕРСТВО КУЛЬТУРЫ,  
ИНФОРМАЦИИ И ТУРИЗМА  
КЫРГЫЗСКОЙ РЕСПУБЛИКИ**

720000, Кыргыз Республикасы,  
Бишкек ша. Пушкин көч. 78  
ААК ЦСК - Бишкек, өлкөсү, Бишкек шаары  
Э-пошта № 1290522501810008  
т/с. № 202201121  
ИНН 01007200010076 КСД Ю 23540644  
тел. +996 (312) 62-64-82, факс 62-35-89  
www.mincult.gov.kg  
www.kyrgyzstan.gov.kg

720040, Кыргызская Республика,  
г. Бишкек, ул. Пушкина, 78  
Бюллетень № 1290522501810008  
почта № 1290522501810008  
т/с 202201121  
ИНН 01007200010076 КСД Ю 23540644  
тел. +996 (312) 62-64-82, факс 62-35-89  
www.mincult.gov.kg  
www.kyrgyzstan.gov.kg

№ 34, 64 / 2016-ж  
Член ЦСК № 343/1903  
Информация (ка) №

**Компания  
KOCKS Consult GMBH**

Koblentz,  
Siegenstr. 32/38  
тел. +49 261 1302-0

Министерство рассмотрев отчет «Археологического обследования на территории соединительных дорог – Альтернативная дорога Север-Юг, коридоры ЦАРЭС 1 и 3, общей протяженности 260 км на территориях Тонского района Иссык-Кульской области, Кочкорского и Жумгалского районов Нарынской области, Жайылского района Чуйской области Кыргызской Республики» выполненный Чаргыновым Т. – доцентом Кыргызского национального университета имени Ж. Баласагына, согласно Открытого листа формы № 3 и исключения комиссии от 25 апреля 2016 года образованного приказом Министерства культуры, информации и туризма Кыргызской Республики № 164 от 21 апреля 2016 года, сообщает следующее.

Заказчику согласно законодательства Кыргызской Республики в сфере историко-культурного наследия необходимо провести археологические раскопки и документирование «на снос» с привлечением специалистов-археологов на нижеследующих недвижимых объектах историко-культурного наследия, расположенных в зоне проектируемого строительства автодороги:

– могильник Куйручук 1 (N41°58'41,0" E074°51'56,0") (79-ый км. по обе стороны автодороги от Кочкора к Чаку);

– могильник Кырчан 1 (N41°52'24,2" E074°19'45,3") (3,5 км. от поворота на право, мост через реку Кокмерен);

- могильник Кырчан 2 (N41°52'59.4" E074°19'20.3") (в 6-ти км. от поворота на право, мост через реку Кокомерен);

- могильник между селами Кырчан и Кызыл-Ой (N41°54'46.8" E074°15'15.5") (в 14-ти км. от поворота на право, мост через реку Кокомерен).

Также Заказчику обеспечить сохранность нижеследующих недвижимых объектов историко-культурного наследия с изменением маршрута проектируемого строительства автодороги в радиусе не менее 50 метров от могильника и организацией работ по разработке их охранных зон и представити на согласование. При не возможности исполнения вышеуказанных требований необходимо провести археологические раскопки и документирование «на снос» с привлечением специалистов-археологов, расположенных в зоне проектируемого строительства автодороги:

- объекты каменно-земляной насыпью (N42.18314 E75.45456) (27-ой км. автодороги от Кочкора к Чаеку);

- могильник (N42°06'21.9" E075°12'00.5") (44-ый км. автодороги от Кочкора к Чаеку (перевал Кыртарт));

- могильник Кыртарт (N42°05'39.7" E 075°08'13.4") (50-ый км. автодороги от Кочкора к Чаеку);

- могильник Кубручук (N41.98436 E74.79124) (86-ом км. автодороги от Кочкора к Чаеку);

- могильник (N41°51'39.5" E074°20'00.4") (в 2-х км. от поворота на право, мост через реку Кокомерен).

Заказчику разработать проект дороги в обход на тех территориях, где расположены и находятся под риском разрушения нижеследующие недвижимые объекты историко-культурного наследия (оседлого населения средневековья и этнографические погребально-поминальные сооружения) с привлечением представителей органов местного самоуправления и специалистов-археологов:

- Сары-Булунский караван-сарай (N42.400664 E76.099044) (8-ой км. от г. Балыкчы по направлению Кочкор);

- комплекс мавзолеев (N41.97764 E74.91014) (75-ый км. автодороги от Кочкора к Чаеку);

- комплекс мавзолеев (N41.99129 E74.64144) (100-м км. автодороги от Кочкора к Чаеку между селами Байтак и Дыйкан);

- **Кумбоз Кожомкул** у въезда в село Кожомкул со стороны села Кызыл-Ой.

Кроме того, Заказчику организовать повторное археологическое обследование на наличие или отсутствие объектов историко-культурного наследия на отрезке автодороги от села Кожомкул до автодороги Бишкек-Ош.

В связи с вышеизложенным с учетом выполнения вышеуказанных мероприятий будет рассмотрен вопрос проектируемого строительства «Соединительных дорог – Альтернативная дорога Север-Юг, коридора



ЦАРЭС 1 и 3, общей протяженности 360 км на территориях Тонского района Иссык-Кульской области, Кочкорского и Жумгалынского районов Нарынской области, Жайылского района Чуйской области Кыргызской Республики».

Стате-секретарь



Б. Секимов

**Annex G: Letter from Department of Water Resources and Irrigation**

**КЫРГЫЗ  
РЕСПУБЛИКАСЫНЫН  
АЙЫЛ ЧАРБА ЖАНА  
МЕЛИОРАЦИЯ МИНИСТРЛИГИ  
Суу чарба жана мелиорация  
департаменти**



**МИНИСТЕРСТВО  
СЕЛЬСКОГО ХОЗЯЙСТВА  
И МЕЛИОРАЦИИ  
КЫРГЫЗСКОЙ РЕСПУБЛИКИ  
Департамент водного хозяйства и  
мелиорации**

720055, Бишкек ш., Токтоналиева көч, 4а,  
Телефон: +(996 312) 549095,  
факс: +(996 312) 549094

720055, г. Бишкек, ул. Токтоналиева 4 а,  
Телефон: +(996 312) 549095,  
факс: +(996 312) 549094

10.12.15 № 6-1824

**Компания KOCKS CONSULT GMBH**

Департамент водного хозяйства и мелиорации, рассмотрев Ваше обращение, сообщает следующее.

Максимальное наполнение Орто-Токойского водохранилища наблюдается в апреле, начале мая месяцев в объеме 470 млн. м<sup>3</sup>. С началом вегетационных поливов водохранилище срабатывается до минимальных объемов около 40 млн. м<sup>3</sup> в зависимости от водности р. Чу. С середины октября по апрель следующего года производится накопление водохранилища. Ремонтные работы производятся в основном по телу плотины и на гидротехнических сооружениях, расположенных в теле плотины.

Согласно постановлению Правительства Кыргызской Республики от 07.07.1995 г. № 271 ширина водоохраной зоны для водохранилищ такого объема составляет 300 м.

Направляем в порядке информации.

**Генеральный директор**

**К. Таштаналиев**

Исполнитель: А. Сулайманов  
т. 54-90-91

**Annex H: Letter from General Directorate of Biosphere territory «Issyk-Kul»**

КЫРГЫЗ РЕСПУБЛИКАСЫНЫН  
ОКМОТУШО КАРАШТУУ КУРЧАП  
ТУРТАН ЧОЙРОНУ КОРГОО ЖАНА  
ТОКОЙ ЧАРБА  
МАМЛЕКЕТТИК АГЕНТТИГИ

«ЫСЫК-КӨЛ»  
БИОСФЕРАЛЫК АЙМАГЫНЫН  
ГЕНЕРАЛДЫК ДИРЕКЦИЯСЫ

721900, Бишкек ш. Нарыккое шоссе көч 10  
тел.-факс 7 04 01

[biostera.ik@rambler.ru](mailto:biostera.ik@rambler.ru)  
p/c 1290144132210036

Бишкек шаарындагы ОАО РСК

Банктын филиалы

БИК (МФО) 129014

ОКНО 22766671

ИНН 00512200110090



ГОСУДАРСТВЕННОЕ АГЕНТСТВО  
ОХРАНЫ ОКРУЖАЮЩЕЙ СРЕДЫ И  
ЛЕСНОГО ХОЗЯЙСТВА ПРИ  
ПРАВИТЕЛЬСТВЕ КЫРГЫЗСКОЙ  
РЕСПУБЛИКИ

ГЕНЕРАЛЬНАЯ ДИРЕКЦИЯ  
БИОСФЕРНОЙ ТЕРРИТОРИИ  
«ЫСЫК-КӨЛ»

721900, г.Бишкек, ул.Нарыккое шоссе 10  
тел.-факс 7 04 01

[biostera.ik@rambler.ru](mailto:biostera.ik@rambler.ru)

p/c 1290144132210036

Бишкекский филиал

ОАО РСК Банк

БИК (МФО) 129014

ОКНО 22766671

ИНН 00512200110090

14.12.2015 № 02-23/394

Директору  
KOCKS Consult GmbH  
Карстен Гриз

Уважаемый Карстен Гриз,

Генеральная дирекция биосферной территории «Ысык-Көл» поддерживает проект реабилитации дорог, способствующему сокращению бедности через обеспечение прямого транзита между Казахстаном и Таджикистаном, продвижение торговли, соединение отдаленных участков с региональными и государственными коридорами. Вместе с тем поясняет, что Биосферная территория «Ысык-Көл» - особо охраняемая природная территория, образованная постановлением Правительства Кыргызской Республики от 25 сентября 1998 года N 623 "О биосферной территории Ысык-Көл" в целях:

- сохранения, восстановления и использования естественных территорий с богатым природным и культурным наследием;
- поддержки долгосрочного, устойчивого экономического и социального развития территорий, в том числе рекреационного использования их с учетом сохранения и восстановления природных ресурсов;
- долгосрочного экологического контроля, мониторинга и экологических исследований, а также экологического просвещения и воспитания.

В соответствии с Законом Кыргызской Республики "О биосферных территориях в Кыргызской Республике" и согласно международным стандартам биосферная территория "Ысык-Көл" разделяется на зоны с различными режимами охраны и использования (ядра, буфера, переходной и санации). Полосы автодорог входят в зону санации, требующих реабилитационных мероприятий.

От Вашей Компании требуется предоставить:  
копию утвержденного проекта дороги;  
положительное заключение Государственной экологической экспертизы,  
заключение Территориального управления охраны окружающей среды по Иссык-Кульской области;

Все нормативно-правовые документы регулирующие деятельность Биосферной территории «Ысык-Көл» высылаем на электронную почту Назгуль Асаналиевой.

С уважением,

Генеральный директор М.Аманкулов



**ПРОТОКОЛ ВСТРЕЧИ**  
**С ГЕНЕРАЛЬНОЙ ДИРЕКЦИЕЙ БИОСФЕРНОЙ ТЕРРИТОРИИ "ЫСЫК-КЕЛЬ"**

Место проведения встречи: г.Балыкчи, ул.Нарынское шоссе 10, здание Генеральной дирекции биосферной территории "Ысык-Кель"

Дата: 27 марта 2017 г.

Участники встречи:

Суйунбаев Эрлан -заместитель генерального директора Генеральной дирекции биосферной территории "Ысык-Кель" при Государственном агентстве по охране окружающей среды и лесного хозяйства при Правительстве Кыргызской Республики

Кененбаева Анипа – заведующая отделом науки, экологического мониторинга и учета биологических ресурсов Генеральной дирекции биосферной территории "Ысык-Кель" при Государственном агентстве по охране окружающей среды и лесного хозяйства при Правительстве Кыргызской Республики

Абдыгулов Асылбек – специалист по окружающей среде Группы реализации инвестиционных проектов Министерства транспорта и дорог Кыргызской Республики

Волкова Татьяна – специалист по окружающей среде ЭПТИСА/JOIC

Бабаджанова Малика – специалист по защитным мерам АБР (RETA8663)

**Цель встречи:** проверка данных по состоянию биологических ресурсов в пределах коридора проектного участка дороги Балыкчи (км 0-43), находящегося в зоне биосферной территории "Ысык-Кель", возможного воздействия проектных работ на редкие и исчезающие виды животных.

В ходе обсуждения состояния биологических ресурсов в зоне участка дороги Балыкчи (км0-43), реабилитация которого рассматривается в рамках проекта "Соединительная дорога коридоров 1 и 3 в рамках ЦАРЭС. Участок Балыкчи (0 км) до километрового поста (43 км)», со стороны представителей Генеральной дирекции биосферной территории "Ысык-Кель" было подтверждено следующее:

1. Участок коридора Балыкчи находится, согласно зонированию биосферной территории "Ысык-Кель", в зоне санации, т.е. в зоне, включающей антропогенно нарушенные территории, требующие регенерационные и рекультивационные меры (Положение о биосферной территории "Ысык-Кель", утвержденное постановлением Правительства КР от 24 января 2000 года N 40, в редакции постановлений Правительства КР от 5 ноября 2002 года N 738, 28 июня 2005 года N 263, 19 сентября 2006 года N 682, 13 марта 2013 года N 131, 23 мая 2013 года N 279, раздел 3 «Территориальное устройство и зонирование»).
2. Территория проектного участка дороги, начиная со времени строительства в 70-х годах 20 века, находилась долгое время под антропогенным воздействием. Отдельных кордонов или станций наблюдения на этом участке не установлено в связи с отсутствием такой необходимости.
3. Редкие и исчезающие виды животных, включенные в систему IBAT и встречающиеся на биосферной территории (список прилагается в разделе J. OBOC), именно в зоне участка Балыкчи практически не встречаются, поскольку они обитают в высокогорной местности.
4. В связи с этим, проведение реабилитационных работ на указанном проектом участке дороги не окажет потенциального негативного воздействия на имеющиеся



биологические ресурсы биосферной территории, в том числе и на краснокнижные виды животных, на виды животных, включенных в систему IBAT.

5. Рекомендовано, в качестве предупредительных смягчающих мер в рамках проекта и содействия борьбы с браконьерством, установить дополнительные знаки на км29 с обозначением начала биосферной территории, а также в пределах участка Балыкчи от км 0 до км 43, установить знаки запрета на охоту (на козорогов, кекликов и т.п.). Дизайн (содержание текста) информационных пано и аншлагов, а также место их установки будут проработаны на более позднем этапе.
6. Поддерживается предложение об информировании или проведении тренингов для рабочего персонала подрядчика, о значении биосферной территории "Ысык-Кёль", сохранении биоразнообразия, превентивных мерах по сохранению флоры и фауны данной территории в рамках Плана управления окружающей средой.
7. В целях получения более полной информации о подготавливаемом ОВОС в рамках данного проекта, проект ОВОС будет отправлен в дирекцию биосферной территории "Ысык-Кёль" для ознакомления и внесения предложений.
8. Выполнение, предлагаемого в ОВОС, Плана управления окружающей средой на должном уровне будет способствовать смягчению/предотвращению негативного воздействия реабилитационных строительных работ на биоразнообразие в зоне проектного участка Балыкчи от км 0 до км 43.

**Подписано:**

Со стороны Генеральной дирекции биосферной территории "Ысык-Кёль", при Государственном агентстве по охране окружающей среды и лесного хозяйства при Правительстве Кыргызской Республики:

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Со стороны ГРИП:

Абдыгулов Асылбек \_\_\_\_\_  
специалист по окружающей среде Группы реализации инвестиционных проектов  
Министерства транспорта и дорог Кыргызской Республики

**Annex I: List of birds monitoring, General Directorate of Biosphere territory «Issyk-Kul»  
Water birds of western Issyk-Kul area.**

**Western Zone:** following monitoring points are covered: Ak-Bulun, Ottuk, Ak-Olen Bay, Orto-Tokoy Water Reservoir, Balykchy bay, Toru-Aygyr.

	<b>2016 winter</b>	<b>2015 winter</b>	<b>2015 Spring</b>
Common kestrel	4	2	1
Eurasian sparrowhawk	2		
Northern goshawk			
Western marshharrier			
Henharrier	3	5	
Shikra			2
Buteo rufinus	6	4	2
Chil	8		
Pheasant	1	2	14
Eurasiancollareddove	6		5
Dove	400	100	
Rock dove			1400
Common wood pigeon			2
Little owl	1		2
Carrioncrow	22	101	12
Hoodedcrow			
Rook	540	15	19
Eurasian magpie	36	2	19
Western jackdaw	20	70	
Mynah	2		2
Commonreedbunting	1		
Sparrow	50		
Hornedlarks	150	440	
Crestedlark			1
Gray lark			7
Rufous-backedredstart	1		
Mistlethrush	3		1
Commonblackbird	4	1	1
Blackkite			10
Chukarpartridge			1
Collaredpratincole			2
Hoopoe			2
Tawnypipit			1
Wagtails			2
Daurianshrike			2
Cetti'swarbler		1	
Saxicola rubicola		2	
Oenanthe isabellina		5	
Chloris		8	
Panurus biarmicus	2	2	
Carduelis cannabina		2	
Emberiza calandra		3	

\*Information was provided by Directorate of Biosphere reserve "Issyk-Kul"

### Rare endangered species

BirdsName	Period		
	2016 winter	2015 winter	2015 Spring
Flamingo	-	-	-
White-tailed eagle	-	-	-
Golden eagle	-	-	-
Black kite	-	-	-
Shahin	-	-	-
Demoiselle Crane	-	-	-
Lesser kestrel	-	-	-
Black stork	-	-	-
Osprey	-	-	-
Ibisbill	-	-	-
Lammergeyer	-	-	-
Pallid harrier	-	-	-
Pallas's sandgrouse	-	-	-
Black-bellied sandgrouse	-	-	-
Vulture	-	-	-
Saker falcon	-	-	-
Short-toed Eagle	-	-	-

\*Information was provided by Directorate of Biosphere reserve "Issyk-Kul"

**Table 2**

**List of birds and mammals included to IBAT System, not included to Kyrgyz Republic's Red Book, 2006.**

#### Water birds of the western Issyk-Kul district.

Western zone: The following monitoring points are covered: Ak-Bulun, Ottuk, Ak-Olen Bay, Ortho-Tokoi Reservoir, Balykchy Bay, Toru-Aygur.

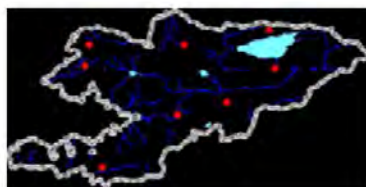
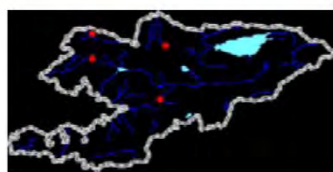
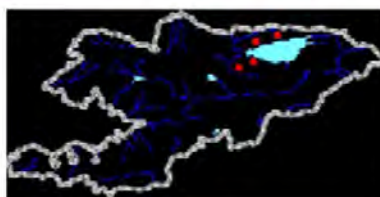
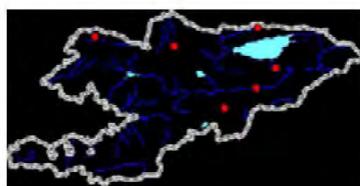
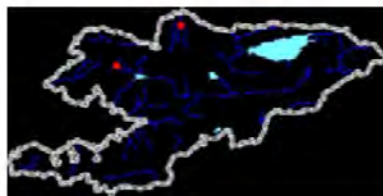
Name of birds	Winter 2015	Spring 2015	Winter 2016	Spring 2016	Winter 2017	Spring 2017
<b>Birds</b>						
Great snipe	-	-	-	-	-	-
Godwit	-	-	-	-	-	-
Curlew	-	-	-	-	-	-
Yellow-eyed dove	-	-	-	-	-	-
Red-breasted goose	-	-	-	-	-	-
<b>Mammals</b>						
Altay weasel	-	-	-	-	-	-

\*Information was provided by Directorate of Biosphere reserve "Issyk-Kul"

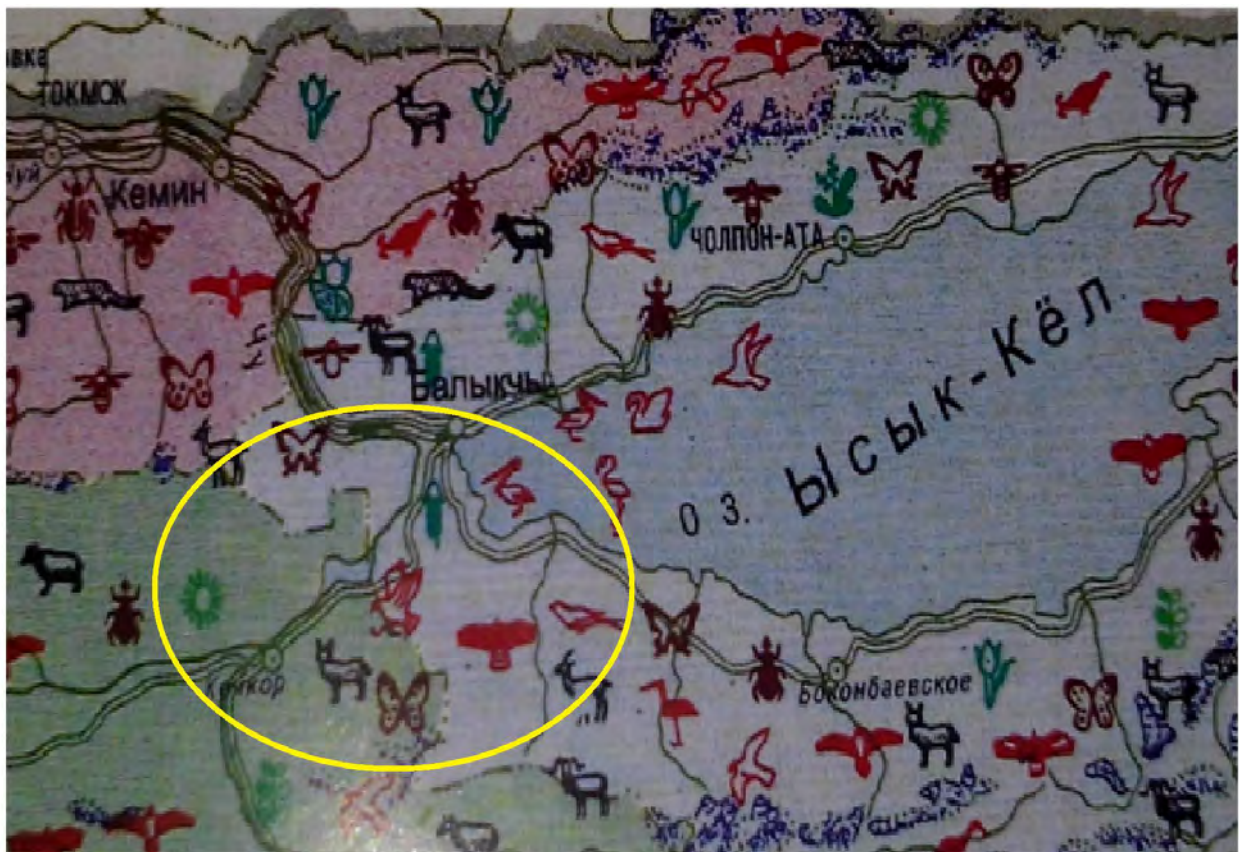
## Annex J: List of species identified from desk study.

**Table 1. List of species with habitat areas determined by biologists**





Note: Red Dotson maps – habitat area of the species.

#	SPECIES	HABITATS
1	<p><b><u>AQUILA CHRYSÆTOS (LINNAEUS)– БЕРКУТ</u></b></p> <p><b>Habitat</b> -Rocks arranged in the forest belt of mountains, in the subalpine and alpine areas [2].</p>	<p><i>Aquila chrysaetos (Linnaeus, 1758)</i></p> 
2	<p><b><u>CIRCAETUS GALLICUS (J.F.GMELIN)- ЗМЕЕЯД</u></b></p> <p><b>Habitats</b> - dry foothills, desert mountains, in the walnut-fruit forests, at an altitude of 1500-2200 m above sea level. [66].</p>	<p><i>Circetus gallicus (J.F. Gmelin, 1788)</i></p> 
3	<p><b><u>SYRRHAPTES PARADOXUS (PALLAS) - САДЖА</u></b></p> <p>It lives in the north-eastern part of the country. [3] Nesting occurs on the west coast of Issyk-Kul lake, valleys of At-Bashi and Naryn Rivers, it is also found in Kochkor Valley. In winter and autumn are often found in other regions of the country [92].</p> <p><b>Habitats</b>-nesting sites are wide stony-gravelly plateau at an altitude of 1600-1900m. a. s. l., with pea bushes, Anabasis and thistles, and in some cases completely without shrubs. [3]</p>	<p><i>Syrrhaptes paradoxus (Pallas, 1773)</i></p> 
4	<p><b><u>FALCO CHERRUG J.E. GRAY БАЛОБАН</u></b></p> <p><b>Habitats</b>-Middle and upper mountain belt from 1300 to 3000 m. a. s. l. The low desert mountains and the dry foothills of the major mountain ranges, river canyons, larvae, tugai, floodplain forests, mixed spruce forests, rocks and cliffs.</p>	<p><i>Falco cherrug J.E. Gray, 1834</i></p> 
5	<p><b><u>ACCIPITER BADIUS (J.F. GMELIN) - ТУРКЕСТАНСКИЙ ТЮВИК</u></b></p> <p><b>Habitats</b>- the flat, low and medium mountain tract landscape, lightly forested; savanna forest slopes, often in the cultural area [2, 15].</p>	<p><i>Accipiter badius (J.F. Gmelin, 1788)</i></p> 


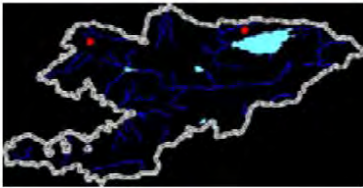
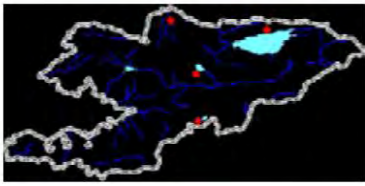
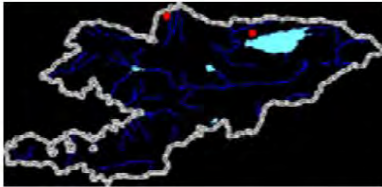
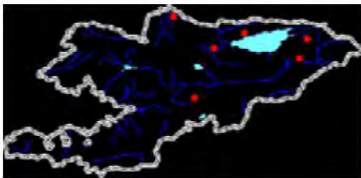



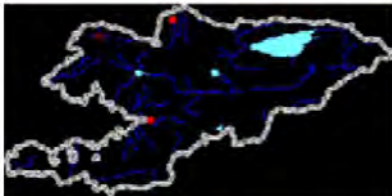
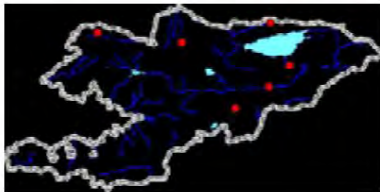




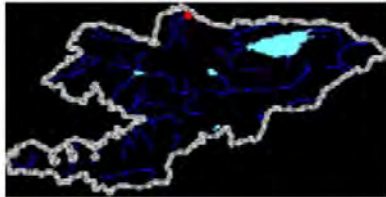
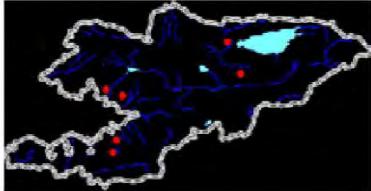
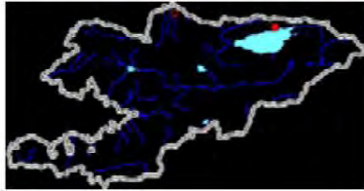
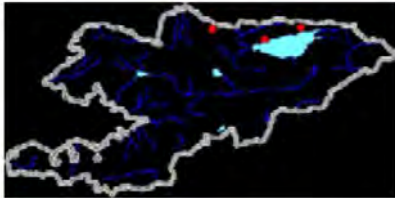
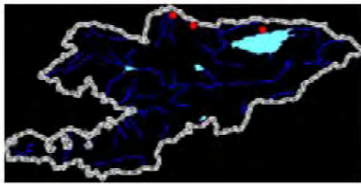
Source: AtlasKR, 1987

	Балобан	<i>Falco cherrug</i> J.E. Gray
	Змееяд	<i>Circaetus gallicus</i> (J.F. Gmelin)
	Беркут	<i>Aquila chrysaetos</i> (Linnaeus)
	Саджа	<i>Syrhaptes paradoxus</i> (Pallas)

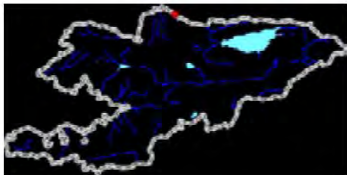
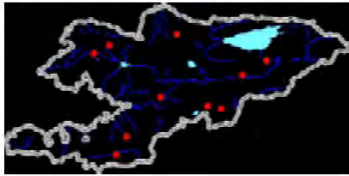
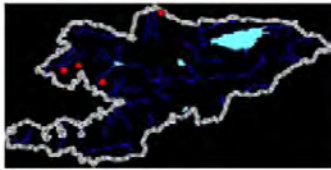
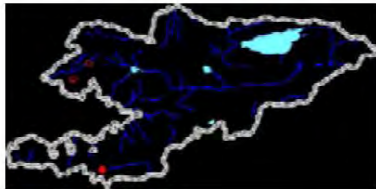

**Table 2. Data based on the RED DATA BOOK of the KR, 2006  
and the list of birds included in IBAT system**

<b>BIRDS</b>		
<b>1</b>	<p><b><u>AEGYPIUS MONACHUS</u> (LINNAEUS) - ЧЕРНЫЙ ГРИФ</b></p> <p><b>Habitats</b>- the subalpine and alpine zones of the Tien Shan, in the habitat of wild cloven-hoofed animals and clusters of pets.</p>	<p><i>Aegypius monachus</i> (Linnaeus, 1758)</p> 
<b>2</b>	<p><b><u>AQUILA HELIACA SAVIGNY</u> МОГИЛЬНИК</b></p> <p><b>Habitats</b>- foothill areas high in the mountains up to 2000 m. a. s. l. It adheres to areas with woody vegetation [66].</p>	<p><i>Aquila heliaca</i> Savigny, 1809</p> 
<b>3</b>	<p><b><u>AYTHYA NYROCA</u> (GULDENSTADT) - БЕЛОГЛАЗАЯ ЧЕРНЕТЬ</b></p> <p><b>Habitats</b>-lakes, reservoirs and ponds with rich water vegetation and inhabited by small aquatic animals.</p>	<p><i>Aythya nyroca</i> (Guldenstadt, 1770)</p> 
<b>4</b>	<p><b><u>CHLAMYDOTIS UNDULATA</u> (JACQUIN, 1784) - ДРОФА-КРАСОТКА</b></p> <p>In Kyrgyzstan, it was seen mainly in the Issyk-Kul lake basin [2].</p> <p><b>Habitats</b>-Takyr desert and semi-desert, desert foothills of ridges, occasionally occurs in autumn and winter on the stubble fields, with grain crops.</p>	<p><i>Chlamydotis undulata</i> (Jacquin, 1784)</p> 
<b>5</b>	<p><b><u>CIRCUS MACROURUS</u> (S.G. GMELIN) - СТЕПНОЙ ЛУНЬ</b></p> <p><b>Habitats</b>- lowland and low and medium mountain outdoor station is not rare in the cultivated areas, rarely rises to the highlands.</p>	<p><i>Circus macrourus</i> (S.G. Gmelin, 1771)</p> 

BIRDS		
6	<p><b><u>AQUILA CLANGA PALLAS</u> - БОЛЬШОЙ ПОДОРЛИК</b></p> <p><b>Habitats</b> - lowland and low and medium mountain landscapes, keeping waterfowl habitats.</p>	<p><i>Aquila clanga</i> Pallas, 1811</p> 
7	<p><b><u>COLUMBA EVERSMANNI BONAPARTE</u> БУРЫЙ ГОЛУБЬ</b></p> <p><b>Habitats</b> - river bluffs on the low-mountain valleys. [2] Can nest in tree holes.</p>	<p><i>Columba evermanni</i> Bonaparte, 1856</p> 
8	<p><b><u>FALCO CHERRUG</u> J.E. GRAY - БАЛОБАН</b></p> <p><b>Habitats</b> - middle and upper mountain belt from 1300 to 3000 m. a. s. l. The low desert mountains and the dry foothills of the major mountain ranges, river canyons, larvae, tugai, floodplain forests, mixed spruce forests, rocks and cliffs.</p>	<p><i>Falco cherrug</i> J.E. Gray, 1834</p> 
9	<p><b><u>GYPAETUS BARBATUS</u> (LINNAEUS) - БОРОДАЧ</b></p> <p><b>Habitats</b> - high-and middle region of the Tien Shan mountain country and Pamir-Alai, adhering to the dissected relief, less plains inhabited by wild cloven-hoofed and place of transhumance.</p>	<p><i>Gypaetus barbatus</i> (Linnaeus, 1758)</p> 
10	<p><b><u>GYPS HIMALAYENSIS</u> HUME ГИМАЛАЙСКИЙ ГРИФ</b></p> <p><b>Habitats</b> - the subalpine and alpine zones of the Tien Shan, in the habitat of wild cloven-hoofed animals and clusters of pets. It nests in areas with rocky outcrops.</p>	<p><i>Gyps himalayensis</i> Hume, 1869</p> 

BIRDS		
11	<p><b><u>HALIAEETUSLEUCORYPHUS</u> (PALLAS) - ОРЛАНДОЛГОХВОСТ</b></p> <p><b>Habitats</b>-Reservoirs with thatched floodplains, flood plains with poplar-willow forests.</p>	<p><i>Haliaeetus leucoryphus</i> (Pallas, 1771)</p> 
12	<p><b><u>NEOPHRONPERCNOPTERUS</u> (LINNAEUS) - СТЕРВЯТНИК</b></p> <p><b>Habitats</b>-mostly desert foothills and midlands with sharply dissected terrain. Rarely in the subalpine zone.</p>	<p><i>Neophron percnopterus</i> (Linnaeus, 1758)</p> 
13	<p><b><u>OXYURALEUCOCEPHALA</u> (SCOPOLI) - САВКА</b></p> <p><b>Habitats</b>-During migration can be stopped in the water bodies shores, overgrown with reeds, cattails. In recent years, it is commonly seen on water reservoirs.</p>	<p><i>Oxyura leucocephala</i> (Scopoli, 1769)</p> 
14	<p><b><u>PELECANUS CRISPUS</u> BRUCH - КУДРЯВЫЙ ПЕЛИКАН</b></p> <p><b>Habitats</b>-During the span rests on the natural and artificial ponds stocked with reeds, shrubs.</p>	<p><i>Pelecanus crispus</i> Bruch, 1832</p> 
15	<p><b><u>TETRAXTETRAX</u>LINNAEUS - СТРЕПЕТ</b></p> <p>Currently, cases of nesting in the country have not been confirmed. It is extremely rare in the bays of the Issyk-Kul Lake and water bodies of the Chu valley.</p> <p><b>Habitats</b>-Areas with virgin steppe with wormwood-ephemeral vegetation.</p>	<p><i>Tetrax tetrax</i> Linnaeus, 1758</p> 



BIRDS		
16	<p><b><u>САРОЕТОБРАМАКУСЧАКЕВИТСЧИ (KESSEL)-ЧУЙСКАЯОСТРОЛУЧКА</u></b></p> <p><b>Habitats</b>- River rapids and backwaters with gravel and sandy soil. From the lower reaches of Chu River to Bishkek [7, 10].</p>	<p><i>Capotobrama kuschakewitschi</i> (Kessel)</p> 
MAMMALS		
17	<p><b><u>CUON ALPINUS (PALLAS) - КРАСНЫЙВОЛК</u></b></p> <p><b>Habitats</b>- Steppe habitats alpine and subalpine zones, the upper part of the forest belt. Associated with the concentration of places of ungulates.</p>	<p><i>Cuon alpinus</i> (Pallas, 1811)</p> 
18	<p><b><u>VORMELA PEREGUSNA GULDENSTAEDT- ПЕРЕВЯЗКА</u></b></p> <p><b>Habitats</b> - the steppes and semi-deserts. It is found in scrub along the river valleys.</p>	<p><i>Vormela peregusna</i> Guldenstaedt, 1770</p> 
19	<p><b><u>LUTRA LUTRA LINNAEUS- СРЕДНЕАЗИАТСКАЯВЫДРА</u></b></p> <p>Previously lived in the basin waters of Issyk-Kul, Chatkal, Naryn and Alai Valley. At the present time - in the Alai Valley, the south-western part of the district Kyzyl-Suu. Perhaps it preserved in the basins of Chatkal, Uzengu-Kuush rivers [3, 9].</p> <p><b>Habitats</b>- the shores of rivers and lakes, rich in fish, with floodplain thickets of trees and shrubs, or fragments of rock.</p>	<p><i>Lutra lutra</i> Linnaeus, 1758</p> 
20	<p><b><u>OVIS AMMON LINNAEUS- ГОРНЫЙБАРАН</u></b></p> <p><b>Habitats</b>- steppes on the flat areas of the mountains and intermountain valleys at any altitudes. But these species now for the most part remained in the highlands, where it is less plagued [47].</p>	<p><i>Ovis ammon</i> Linnaeus, 1758</p> 

## Annex K. Information letter from MoTR

<b>КЫРГЫЗ РЕСПУБЛИКАСЫНЫН ТРАНСПОРТ ЖАНА ЖОЛДОР МИНИСТРЛИГИ</b>		<b>МИНИСТЕРСТВО ТРАНСПОРТА И ДОРОГ КЫРГЫЗСКОЙ РЕСПУБЛИКИ</b>
720017, Бишкек ш., Исанов көч., 42 тел. +996 (312) 31-43-85, 31-43-13, факс: +996 (312) 31-28-11 E-mail: mtk@mtk.gov.kg http://www.mtk.kg		720017, г. Бишкек, ул. Исанова, 42 тел. +996 (312) 31-43-85, 31-43-13, факс: +996 (312) 31-28-11 E-mail: mtk@mtk.gov.kg http://www.mtk.kg
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№ <u>14-8/5879</u>	« <u>20</u> » <u>07</u> 2016 ж. (г.)	
На № _____		

КР Өкмөтүнүн Чүй облусундагы ыйгарым  
укуктуу өкүлчүлүгү

КР Өкмөтүнүн Нарын облусундагы ыйгарым  
укуктуу өкүлчүлүгү

КР Өкмөтүнүн Ысык-Көл облусундагы  
ыйгарым укуктуу өкүлчүлүгү

Жайыл районунун мамлекеттик райондук  
администрациясы

Кочкор районунун мамлекеттик райондук  
администрациясы

Жумгал районунун мамлекеттик райондук  
администрациясы

Балыкчы ш. мэриясы

Бишкек – Ош автожолун Бишкек-Нарын-Торугарт автожолу (Балыкчы ш. – Кочкор а. – Арал а. – Суусамыр а.) менен коридор аралык бириктирүүчү жолду реабилитациялоо долбооруна карата Техникалык-экономикалык негиздемени даярдоо үчүн Азия Өнүктүрүү Банкы тарабынан бөлүнгөн техникалык жардамды ишке ашыруунун алкагында, бул иштер үчүн Азия Өнүктүрүү Банкы тарабынан «KOCKS» консультациялык компаниясы тандалган.

Сунушталып жаткан долбоор Кыргыз Республикасынын региондорунун төмөндөгү социалдык-экономикалык көрсөткүчтөрүн жакшыртат:

- Түштүк региондордон Нарын жана Ысык-Көл облустарына адамдардын жана товарлардын жылуусунда жолго кеткен убакыттын кыскарышы;
- каттамды кыскартууга жана жакшы жол шарттарына байланыштуу транспорт чыгымдарын азайтуу;
- жергиликтүү жана эле аралык ташууларды жана кыймылдарды көбөйтүү;
- жергиликтүү жашоочулар үчүн кошумча киреше алып келүүчү мүмкүнчүлүктөрдүн пайда болушу.
- жаңы жумушчу орундарын түзүү;



- транспорт каражаттарынын (ТК) он абалы/ пайдалануу чыгымдарын кыскартуу.

Техникалык-экономикалык негиздемени даярдоонун алкагында «KOCKS» консультациялык компаниясынын адистери тарабынан КР ТжКМ Инвестициялык долбоорлорду ишке ашыруу тобунун өкүлдөрү менен биргеликте “Курчап турган чөйрөгө таасирлерин баалоо отчетун” жана “Көчүрүү жана жерлерди алуу планын” даярдоо боюнча иштер аяктады.

Бул документтер менчик ээлеринин укуктарын коргоого, курчап турган чөйрөнү коргоого багытталган КР ченемдик-укуктук актыларына ылайык жана АӨБ Коргоо чаралары боюнча саясатынын талаптарын эске алуу менен даярдалды.

Азыркы убакта Техникалык-экономикалык негиздемени даярдоо боюнча иштер аяктап калды жана пландалган долбоордун таасирин тийиши мүмкүн, реабилитациялануучу автожол участогунун жээгинде жашаган, жергиликтүү калктын арасында пландалган долбоорго байланыштуу маалыматты жайылтууга тиешелүү Азия Өнүктүрүү Банкынын талабын аткаруу керек.

Жогоруда берилгендердин негизинде, КР “КР мамлекеттик органдарынын жана жергиликтүү өз алдынча башкаруу органдарынын жүргүзүүсүндө турган маалыматтарга жетүү мүмкүндүгү жөнүндө” мыйзамынын талаптарын аткаруу, ошондой эле Азия Өнүктүрүү Банкынын Коргоо чаралары боюнча саясатынын талаптарын сактоо максатында, Сиздерден долбоордун мүмкүн болуучу таасири жөнүндө маалымдуулукту жогорулатуу максатында жергиликтүү калк арасында түшүндүрүү иштерин жүргүзүүнү өтүнөбүз. Бишкек – Ош автожолун Бишкек-Нарын-Торугарт автожолу менен коридор аралык бириктирүүчү жолду реабилитациялоо долбоору төмөндөгү калктуу пункттарды камтыйт:

Чүй облусунун Жайыл району:

- Кызыл-Ой а., Кожомкул а., Суусамыр а., Тунук а., Суусамыр айыл аймагы.

Нарын облусунун Кочкор району:

- Көк-Жар а., Көк-Жар айыл аймагы;  
- Чекилдек а., Семиз-Бел айыл аймагы;  
- Эпкин/Ак-Учук а., Чолпон айыл аймагы.

Нарын облусунун Жумгал району:

- Жумгал а., Жумгал айыл аймагы;  
- Куйручук а., Куйручук айыл аймагы;  
- Түгөл-Сай а., Түгөл-Сай айыл аймагы;  
- Баш-Кууганды а., Кырчын а., Баш-Кууганды айыл аймагы;  
- Байзак а., Байзак айыл аймагы;  
- Чаек а., Чаек айыл аймагы;  
- Кызыл-Жылдыз а., Кызыл-Жылдыз айыл аймагы.

Балыкчы ш., Ысык-Көл облусу:

Тиркеме: Долбоор жана долбоордун мүмкүн болуучу таасири жөнүндө маалымат  
- 5 баракта.

Урматтоо менен,

Министр



З.Айдаров

Аткар. Абдыгулов А. Тел. 31-43-56

Долбоор жана долбоордун мүмкүн болуучу таасири жөнүндө маалымат  
(экологиялык жана социалдык маселелер).

**Балыкчы ш., Таш-Сарай жана Орто-Токой айылдары.**

**Кочкор району:**

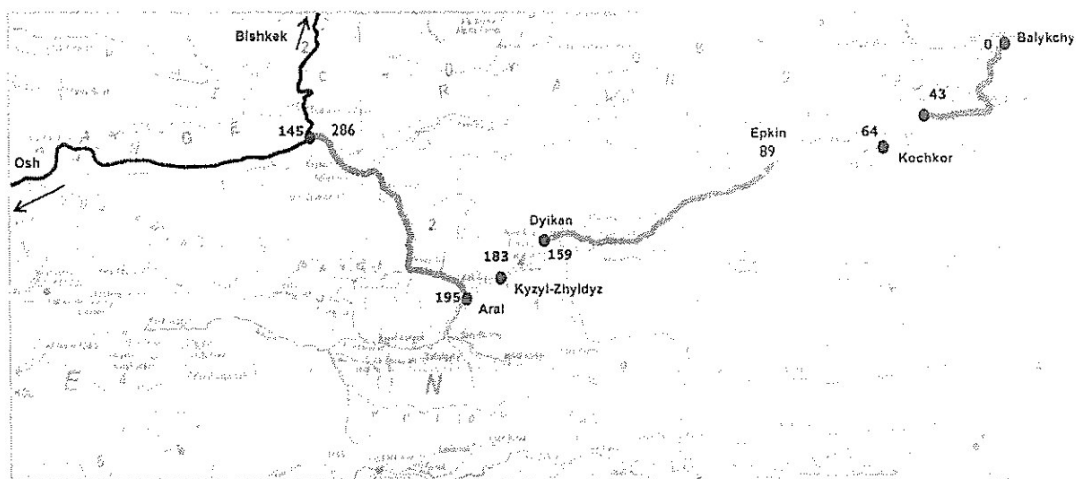
1. Көк-Жар а/а – Көк-Жар айылы
2. Семиз-Бел а/а – Чекилдек айылы
3. Чолпон а/а – Эпкин/Ак-Учук айылы

**Жумгал району:**

1. Жумгал а/а – Жумгал айылы
2. Куйручук а/а – Куйручук айылы
3. Түгөл-Сай а/а – Түгөл-Сай айылы
4. Баш-Кууганды а/а – Баш-Кууганды, Кырчын айылдары
5. Байзак а/а – Байзак айылы
6. Чаек а/а – Чаек, Ак-Татыр айылы
7. Кызыл-Жылдыз а/а – Кызыл-Жылдыз айылы

**Жайыл району:**

Суусамыр а/а – Кызыл-Ой, Кожомкул, Суусамыр, Тунук айылдары



Кыргыз Республикасынын Өкмөтү Азия өнүктүрүү банкына (АОБ) БАРЭК алкагында 1 жана 3-коридорлорду бириктирүүчү жолду жакшыртуу боюнча долбоорго кийинки кредитти жана/же грантты аныктоо, иштеп чыгуу жана даярдоо өтүнүчү менен кайрылган. ТППП негизги жыйынтыгы донорлордун каржылоосу үчүн ылайыктуу техникалык-экономикалык негиздемени даярдоо болуп саналат.

ТППП 5 участкау камтыйт:

- Балыкчыдан (км) 43 километр белгисине чейин (км 0 - км 43), болжол менен 43 километр (км);
- Кочкордон Эпкин айылына чейин (км 64 – км 89), болжол менен 25 км;
- Эпкинден (89 км) Баш-Куугандыга чейин [мурдагы Дыйкан] (159 км), болжол менен 70 км;



- Дыйкан айылынан тартып (159 км) Кызыл-Жылдыз айылына чейин (183 км), болжол менен 24 км, мында Чаек айылын жана Кызыл-Жылдыз айылынын бир бөлүгүн айланып өтүү үчүн айланма жолду куруу каралууда: жана
- Аралдан тартып (195 км) Төө-Ашуу ашуусуна чейин (286 км), болжол менен 91 км.

Долбоордун алкагында корголбогон компоненттердин тармактык көйгөйлөрү дагы чечилет. Өкмөт менен айрым деталдарда макулдашууга жетишүү талап кылынат, аларга төмөндөгүлөр кирет: (i) Кыргыз Республикасында жол активдерин башкаруунун натыйжалуулугун жогорулатуу, (ii) өкмөттү транспорт секторундагы институтуционалдык реформалар менен колдоо, (iii) натыйжалуулукка негизделген тейлөөгө контракттарды жүргүзүү жана (iv) Кыргыз Республикасында жол коопсуздугун жогорулатуу.

Транспорт жана коммуникация министрлигине (ТЖКМ) караштуу Инвестициялык долбоорлорду ишке ашыруу тобу (ИДИТ) курулуш баскычында ушул долбоор боюнча Аткаруучу орган (АО) катары чыгат. Мүмкүн болуучу финансылык жардамдын баштапкы бөлүгү катары, АӨБ бүтүндөй долбоор үчүн техникалык-экономикалык негиздемени жана болжолдуу долбоорду даярдоо үчүн «Кокс Консульт Гмбх», Германия, жалдады. Консультациялык кызмат көрсөтүүлөрдүн көлөмү баштапкы экологиялык изилдөөнү (БЭИ); жана социалдык талдоону жана жакырчылыкты талдоону жана 2009-жылдагы АӨБ Кепилдиктер саясаты жөнүндө билдирүүгө (КСБ) ылайык кесепеттерин баалоону камтыйт.

Сунушталып жаткан долбоор Кыргыз Республикасынын региондорунун томондогу социалдык-экономикалык көрсөткүчтөрүн жакшыртат:

- Түштүк региондордон Нарын жана Ысык-Көл облустарына адамдардын жана товарлардын жылуусунда жолго кеткен убакыттын кыскарышы.
- Каттамды кыскартууга жана жакшы жол шарттарына байланыштуу транспорт чыгымдарын азайтуу.
- Жергиликтүү жана эле аралык ташууларды жана кыймылдарды көбөйтүү.
- Жергиликтүү жашоочулар үчүн кошумча киреше алып келүүчү мүмкүнчүлүктөрдүн пайда болушу.
- Жаңы жумушчу орундарын түзүү.
- Транспорт каражаттарынын (ТК) оң абалы/ Пайдалануу чыгымдарын кыскартуу.

Кыргыз Республикасынын мыйзамдарына ылайык курчап турган чөйрөгө таасирине баалоо жүргүзүү керек. ТЭН баскычында курчап турган чөйрөгө таасирин баалоону изилдөө Техникалык-экономикалык негиздемеге (ТЭН) карага Курчап турган чөйрөгө таасирин алдын ала баалоо (КЧТАБ) катары каралат жана КЧТБ отчету менен таризделет.

АӨБ Коргоо Саясаты боюнча Жобосунун жиктемесине ылайык (2009) долбоор В [би] категориясына кирет жана курчап турган чөйрөгө таасирин толук баалоону (КЧТБ) талап кылбайт. АӨБ «В» категориясындагы долбоорлор үчүн саясатынын алкагында Баштапкы экологиялык баалоону (БЭБ) даярдоо керек.

Кыргыз Республикасынын мыйзамдарына ылайык долбоорду категориялаштыруу өткөрүлбөйт, бирок БЭБ жана КЧТАБ документтерин бирдей маанидеги катары кароого болот.

#### Экологиялык жана Социалдык Баалоонун максаттары

- Ар кандай түз жана кыйыр экологиялык тобокелдиктердин деңгээлдерин аныктоо жана баалоо жана алар менен байланыштуу кесепеттерди жумшартуу боюнча сунуштар

- Долбоордун БЭБ/КЧТАБ даярдоо

- Жаратылышты коргоо иш-чараларынын планын (ЖКП) даярдоо.

Ушул БЭБ/КЧТАБ максаты сунушталып жаткан долбоордун курчап турган чөйрөгө, дең соолукка, коопсуздукка потенциалдуу таасирин баалоо жана социалдык таасирин баалоо болуп саналат. Экологиялык баалоо процессинде, курулуш иштеринин күтүлүп жаткан

көлөмүнө байланыштуу курчап турган чөйрөгө эч кандай олуттуу жагымсыз жана кайтарымыз таасирлер белгиленген жок. БЭБ/КЧТАБ боюнча ушул документ өзүнө бүтүндөй долбоордук цикл аралыгында жүргүзүлө турган минималдаштырууга, кыскартууга жана жумшартууга (же жабыркаган тараптарга компенсация төлөп берүүгө) багытталган, кесепеттерди жумшартуу боюнча тийиштүү чаралар менен аныкталган потенциалдуу таасирлердин, алардын мүнөздөмөлөрүнүн, чоңдугунун, жайылуусунун жана узактыгынын, сезгич рецеторлордун жана козголгон тонктордун негизиндеги Курчап турган чөйрөнү башкаруу планын (КЧБП) камтыйт.

Бардык участкалар үчүн БЭБ/КЧТАБ изилдөө болгон булактардын катарынан экинчи маалыматтын негизинде өткөрүлөт. Ошондой эле суунун, абанын сынамдарын алуу, ызы-чууну жана вибрацияны өлчөө өткөрүлдү.

### Долбоорду сүрөттөө

Төмөндө көрсөтүлгөн жол участкалары жолдун II техникалык категориясына чейин реконструкцияланат:

- Балыкчыдан (км) 43 километр белгисине чейин (км 0 - км 43), болжол менен 43 километр (км);
- Кочкордон Эпкин айылына чейин (км 64 – км 89), болжол менен 25 км;
- Эпкинден (89 км) Баш-Куугандыга чейин [мурдагы Дыйкан] (159 км), болжол менен 70 км;
- Дыйкан айылынан тартып (159 км) Кызыл-Жылдыз айылына чейин (183 км), болжол менен 24 км, мында Чаек айылын жана Кызыл-Жылдыз айылынын бир бөлүгүн айланып өтүү үчүн айланма жолду куруу каралууда.

Аралдан тартып (195 км) Төө-Ашуу ашуусуна чейинки (286 км), болжол менен 91 км, жол участкасы жолдун III техникалык категориясына чейин реконструкцияланат.

Долбоорлорго жолдун участкасы тууралуу кененирээк төмөндө берилген:

- Кыргызстандын мамлекеттик стандартына ылайык, долбоорлонгон жол участкаларын II, III техникалык категорияга чейин реконструкциялоо.
- Көпүрөлөрдү жана суу өткөрүүчү түтүктөрдү калыбына келтирүү, оңдоо жана/же алмаштыруу
- Каптал арыктарды жана башка дренаждык курулмаларды куруу.
- Тирегич дубалдарды жана зарыл болгондо дарыяларды коргоо боюнча чараларды камсыздоо
- Талаптагыдай жол белгилерин жана белги салууларды камсыздоо
- Коргоочу тосмолорду камсыздоо.

Жол Кыргызстандын геометрикалык долбоордук ченемдерине ылайык иштелип чыгышы керек жана ал болжолдонгон кызмат өтөө мөөнөтү аралыгында жол кыймылынан болгон жүктөмдү натыйжалуу көтөрүү үчүн туруктуу болушу керек. Жол өтмө бөлүктүн кеңдигинен (тилкелердин туурасынын суммасы) жана жол жээгинин кеңдигинен турган, кыймылдын эки тилкеси менен жол болот. Төмөндө кесилиш боюнча конструктивдүү элементтер берилген:

#### ➤ II долбоордук жолу үчүн:

- |                           |  |
|---------------------------|--|
| • Тилкелердин саны:       | 2  |
| • Тилкенин кеңдиги:       | 3,5-3,75 м                                     |
| • Өтмө бөлүктүн кеңдиги:  | 7,00-7,50 м                                    |
| • Жолдун четинин кеңдиги: | 3,25-3,75 м (анын ичинде 0,50-0,75 м салынган) |

- Жолдун жалпы узундугу: 15.00 м
- III долбоордук жолу үчүн:
  - Тилкелердин саны: 2
  - Тилкенин кеңдиги: 3.5 м
  - Өтмө бөлүктүн кеңдиги: 7.00 м
  - Жолдун четинин кеңдиги: 2.5 м (анын ичинде 0.50 м салынган)
  - Жолдун жалпы узундугу: 12.00 м

### **Курчап турган чөйрөгө күтүлгөн таасирлери жана жумшартуу боюнча чаралар**

#### **Таасирлери.**

Жол долбоорунун таасиринин олуттуу бөлүгү түздөн-түз курулуш иштеринен келип чыгаары болжолдонууда, ал эми айрым таасирлер пайдалануу убагында пайда болот. Бул таасир кыймылдын интенсивдүүлүгүнүн жана транспорт каражаттарынын кыймылынын ылдамдыгынын жогорулашы менен шартталган жана газдардын чыгышдыларынын деңгээлинин жогорулашына жана ызы-чуу таасирине, ошондой эле жөө жүрүүчүлөрдүн жана транспорт каражаттарынын катышуусу менен ЖТК потенциалдуу өсүшүнө кирет. Мындан тышкары зыяндуу заттардын төгүлүшү менен байланыштуу өзгөчө кырдаалдардын жогорку тобокелдиги болот.

#### Таасирлердин төмөндөгүдөй түрлөрү аныкталган:

(i) ызы-чуу таасири, булгоочу заттардын абага чыгышдылары, ошондой эле вибрация, бул Долбоордун жолго жакын калктуу пункттардын чегинде жана мектеп, оорукана, мечит ж.б. (мисалы: жолго жакын жайгашкан үй чарбалары; карьерлер, базарлар, маданий жана тарыхый баалуулуктар, чоң кесилиштер) сыяктуу, таасир этүүнүн сезгич реципиенттери жайгашкан жерлерде өзгөчө мааниге ээ;

(ii) сууларга жана дарыяларга таасири;

(iii) карьерлерде толуктагычтардын булактарын издөөнүн жыйынтыгындагы таасир;

(iv) топуракка жана өсүмдүктөргө таасири, анын ичинде участкаларду тазалоо боюнча иштерден улам долбоордук жолдун жанындагы дарак көчөттөргө таасири;

(v) көпүрөлөрдү жана дренаждык курулмаларды реабилитациялоонун жыйынтыгындагы таасир;

(vi) асфальт өндүрүү (асфальт заводдору) жана толуктагычтарды майдалоо үчүн орнотмолордон болгон таасир;

(vii) подрядчынын жумушчу лагерлери тарабынан таасир. Мындан тышкары, таасирлер төмөндөгү топторго бөлүнгөн: долбоорлоо этабындагы таасир, куруу этабындагы таасир жана жумушчу этабындагы таасир.

#### **Иш-чаралар.**

Алдын ала долбоорлоонун жүрүшүндө жана долбоорлоо баскычында талаптагыдай пландоо/даярдоо аркылуу таасирлерден алыс болууга болот.

Таасирлерди жумшартуу боюнча чаралар төмөндөгүлөрдү камтыйт:

(i) эрозияга каршы иш-чараларды пайдалануу;

(ii) дарактарды кыюудан алыс болуу үчүн, асимметрикалуу кеңейтүү;

(iii) жумушчулар үчүн катуу нускамаларды берүү менен маданий жана тарыхый объекттерге кол салуунун алдын алуу

## **Annex L. Minutes Meeting with General Directorate of “Issyk-Kul” Biosphere Reserve**

### **MINUTES OF MEETING**

#### **WITH GENERAL DIRECTORATE OF “ISSYK-KUL” BIOSPHERE RESERVE**

Place: 10 Naryn str, Balykchy City, building of General Directorate of “Issyk-Kul” Biosphere Reserve.

Date: March 27, 2017.

#### **Participants:**

Erlan Suynbaev – Deputy Director of General Directorate of “Issyk-Kul” Biosphere Reserve under the State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic

Anyipa Kenenbaeva – Head of the Department of Science, Environmental Monitoring and Accounting of Biological Resources of the General Directorate of “Issyk-Kul” Biosphere Reserve under the State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic

Asylbek Abdygulov – Environmental Specialist of the Investment Projects Implementation Group under the Ministry of Transport and Roads of the Kyrgyz Republic

Tatiana Volkova – Environmental Specialist EPTISA/JOC

Malika Babadjanova – ADB Safeguard Specialist (RETA8663)

The purpose of the meeting: to check the status of biological resources within the corridor of Balykchy road section (km 0-43) in the area of "Issyk-Kul" biosphere territory, the possible impact of design work on rare and endangered species of animals.

During the discussion regarding the conditions of biological resources in the area of Balykchy road section (km0-43), the rehabilitation of which is being considered in the framework of CAREC Corridor 1 and 3 Connector Road Project Balykchy Section (0 km) to the kilometer post (43 km), the following was confirmed by the representatives of the General Directorate of "Issyk-Kul" Biosphere Reserve:

1. The section of Balykchy corridor is located, according to the zoning of the biosphere territory of "Issyk-Kul", in the sanitation zone, i.e. in the zone that includes anthropogenically disturbed territories that require regeneration and remediation measures (the Regulation on the Biosphere Territory "Issyk-Kul" approved by the Government of the Kyrgyz Republic on January 24, 2000 No. 40, as amended by the Government of the Kyrgyz Republic on November 5, 2002, No. 738, 28 June 2005 No. 263, September 19, 2006 N 682, March 13, 2013 N 131, May 23, 2013 N 279, section 3 "Territorial arrangement and zoning").
2. The territory of the project section of the road, since the time of construction in the 70s of the 20th century, has been under anthropogenic influence for a long time. Separate cordons or observation stations on this site are not installed due to the lack of such a need.
3. Rare and endangered species of animals included in the IBAT system and found on the biosphere territory (the list is attached in Section J, IEE), it is in the area of Balykchy Section that they practically do not occur, since they live in high-altitude areas.
4. In connection with this, carrying out of the rehabilitation works in the specified project section of the road will not have a potential negative impact on the available biological resources of the biosphere territory, including on the Red Book species of animals, on the species of animals included in the IBAT system.

5. It is recommended that, as precautionary mitigating measures within the project and to contribute to the fight against poaching, to establish additional signs for km29 with the designation of the beginning of the biosphere territory, and also within the Balykchy Section from km 0 to km 43, to establish signs of a ban on hunting (restriction for hunting to capricons and quails, etc.). The design (content of the text) of informational signs, as well as the place of their installation, will be worked out at a later stage.
6. A proposal is supported to inform or conduct training for the Contractor's staff, the importance of the biosphere territory "Issyk-Kul", the conservation of biodiversity, preventive measures to conserve the flora and fauna of this territory within the framework of the Environmental Management Plan.
7. In order to obtain more complete information on IEE, which is under the preparation within the framework of this project, the draft IEE will be sent to the Directorate of "Issyk-Kul" Biosphere Reserve for acquaintance and making suggestions.
8. The implementation of the Environmental Management Plan proposed in the IEE at the proper level will help to mitigate / prevent the negative impact of construction works on biodiversity in Balykchy Section from km 0 to km 43.

Signed:

On behalf of General Directorate of "Issyk-Kul" Biosphere Reserve under the State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic:

Erlan Suynbaev \_\_\_\_\_  
Deputy Director

Anyipa Kenenbaeva \_\_\_\_\_  
Head of the Department of Science, Environmental Monitoring and Accounting

On behalf of IPIG:

Asylbek Abdygulov \_\_\_\_\_  
Environmental Specialist of the Investment Projects Implementation Group under the Ministry of Transport and Roads of the Kyrgyz Republic