

The logo of the Asian Development Bank (ADB), consisting of the letters "ADB" in white serif font on a dark blue square background.

**ADB GRANT 0084-KGZ:  
CAREC REGIONAL ROAD CORRIDOR  
IMPROVEMENT PROJECT**

**THE MINISTRY OF TRANSPORT AND COMMUNICATIONS  
OF THE KYRGYZ REPUBLIC**



**ENVIRONMENTAL MONITORING  
REPORT**

 **International Group, Inc.**

The logo for TERA International Group, Inc., featuring the letters "TERA" in a stylized red and white font, followed by the company name in black.

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**CURRENCY EQUIVALENTS**

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**ABBREVIATIONS AND UNITS**

AADT	annual average daily traffic
ADB	Asian Development Bank
CAR	Central Asian republic
CAREC	Central Asia Regional Economic Cooperation
CBA	cross-border agreement
EA	Executing Agency
EIA	Environmental Impact Assessment
EIRR	economic internal rate of return
FSU	former Soviet Union
GDP	gross domestic product
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
ICB	international competitive bidding
IEE	initial environmental examination
LAR	land acquisition and resettlement
MOTC	Kyrgyz Ministry of Transport and Communications
NCB	national competitive bidding
PAM	Project Administration Memorandum
PBM	performance-based maintenance
PIA	Project Impact Area
PIU	Project Implementation Unit
PMIS	project management information system
PPMS	project performance management system
PPTA	project preparatory technical assistance
PRC	People's Republic of China
ROW	right-of-way
RP	resettlement plan
SAEPF	State Agency for Environmental Protection and Forestry
SIEE	summary initial environmental examination
SRP	short resettlement plan
TA	technical assistance
TAJMOTC	Tajik Ministry of Transport and Communications

**NOTES**

- (i) \$ refers to USA dollars unless otherwise specified.
- (ii) The Kyrgyz Fiscal Year is from 1 January to 31 December.

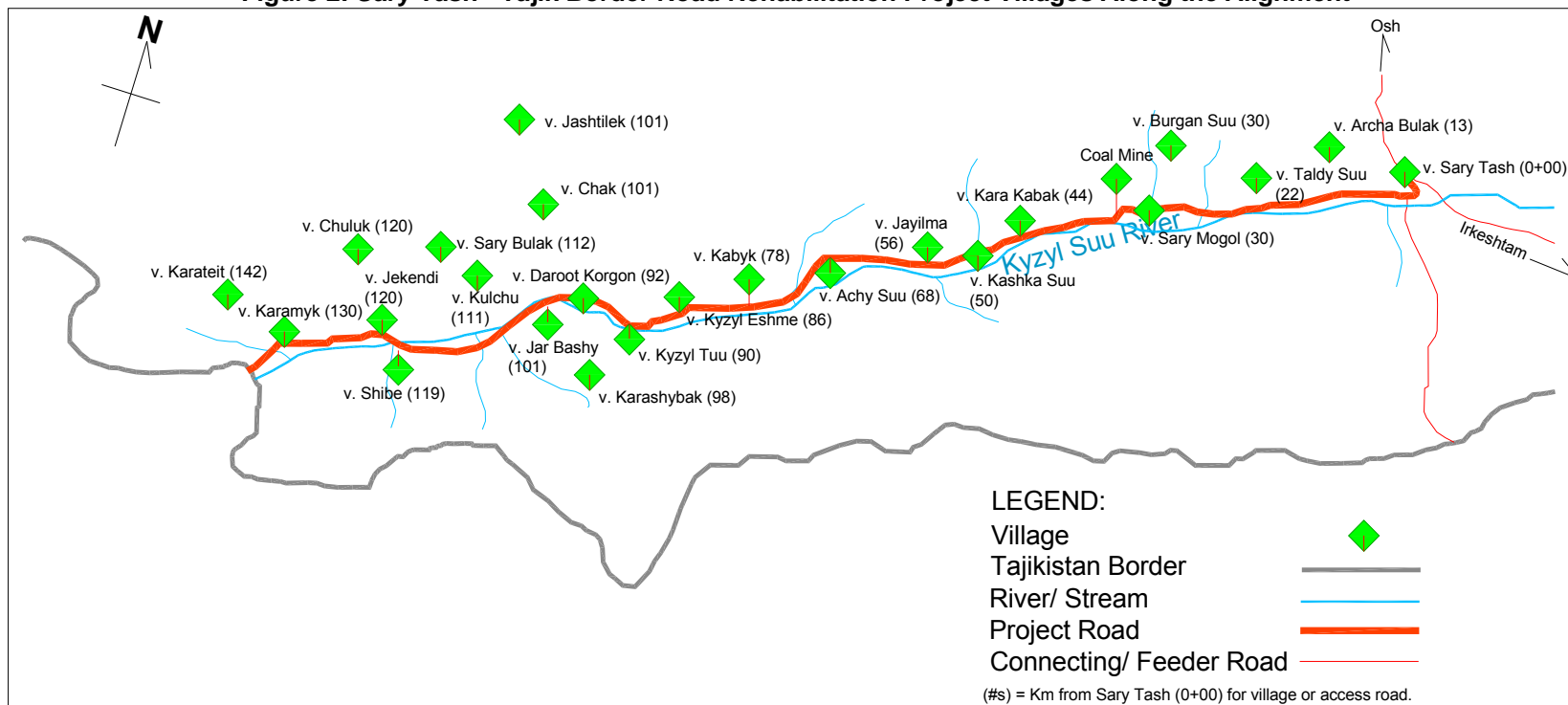
**PROJECT BENEFITS MONITORING AND EVALUATION  
BASELINE REPORT DECEMBER 2008**

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**Figure 2: Sary Tash - Tajik Border Road Rehabilitation Project Villages Along the Alignment**



**THE MINISTRY OF TRANSPORT AND COMMUNICATIONS  
OF THE KYRGYZ REPUBLIC FOR  
GRANT 0084-KGZ: CAREC REGIONAL ROAD CORRIDOR IMPROVEMENT PROJECT**

**ENVIRONMENTAL MONITORING REPORT  
MAY 2010**

## **1. INTRODUCTION**

1. This report is prepared by the Project Implementation Unit of the Ministry of Transport and Communications (MOTC) of the Kyrgyz Republic, with assistance provided by TERA International Group, Inc. (TERA, and the “Consultant” hereafter) under the terms and conditions of the Contract for Consultant’s Services dated 6 May 2008 (Contract) between the MOTC and TERA to provide Design Review, Procurement, Construction Supervision and Monitoring and Evaluation as part of the Asian Development Bank (ADB) funding to assist the government of the Kyrgyz Republic under ADB Grant 0084-KGZ: “CAREC Regional Road Corridor Improvement Project (Sary Tash – Karamyk).” This report discusses implementation of the Environmental Management Plan during construction season 2009.

2. The Contractor (China Road and Bridge Corporation) signed the contract in August 2008 and officially began preliminary operations in October. In November 2008, the Contractor submitted the Health, Safety and Environmental Management Plan and the Construction Methodology as scheduled. In addition, the Contractor prepared the organizational chart, staffing plan, and cash flow for the Project. The Notice to Commence was issued to the Contractor on 21 November with an effective start date of 1 December 2008.

## **2. PROJECT DESCRIPTION**

3. The Project is designed to produce the following outputs: (i) improved two-lane road of about 136 km from Sary Tash in the Kyrgyz Republic to the Kyrgyz-Tajik border; (ii) improved infrastructure at the Kyrgyz-PRC border crossing (Irkeshdam) and the Kyrgyz-Tajik border crossing (Karamyk); (iii) increased sustainability and capacity of the road subsector through outsourcing maintenance operations to the private sector in the Kyrgyz Republic and Tajikistan; and (iv) a cross-border agreement among the Kyrgyz Republic, PRC, and Tajikistan. Grant 0084-KGZ focuses on outputs (i) and (iii), with the border crossing improvements and agreements covered by other funding allocations.

4. As such, the Project road will facilitate corridor development in the Kyrgyz Republic, and provide linkages to other Central Asian Republics (CAR) and the Xinjiang Autonomous Region of the People’s Republic of China (PRC). This project focuses on the continuation of the CAREC Corridors 2 and 5<sup>1</sup> linking the village of Sary Tash through the Karamyk pass to the Tajikistan border at the Karamyk border crossing point and the road which is undergoing rehabilitation that continues on to Dushanbe. The Sary Tash-Karamyk road is thus an important regional artery, and its upgrade will lead to increased trade and economic development. (See Figures 1, 2 and 3, which show the regional significance of the Project road).

5. In general, the road follows the Alay valley along the Kyzyl-Suu River. At the eastern end of the road, the village of Sary Tash serves as a hub in the transport corridor linking the Republic’s second largest city Osh to the north and the Chinese border to the southwest. The road has evolved from rough trails since the 1960s into a Class IV road with large sections fallen into neglected state due to the lack of maintenance funds. The road will be rehabilitated into a true category IV capable of carrying a maximum of 1,000 vehicles per day.

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<sup>1</sup> CAREC Corridor 2 connects the PRC with the Kyrgyz Republic, Uzbekistan, Azerbaijan and on to Turkey and Europe. CAREC Corridor 5 begins in the PRC and passes through the Kyrgyz Republic, Tajikistan and through northeastern Afghanistan into Pakistan and its ports.

6. The Project road, about 136 km long, links Sary Tash westward to the Tajikistan border near Karamyk. It is located in the most southern area of the Kyrgyz Republic. It follows the Alay valley from an altitude of 3,200 m near Sary Tash descending to 2,500 m in Karamyk. Sary Tash is situated on the major international road EM 02 linking Osh to the PRC through the Irkeshtam cross border point. It is planned that this road (EM 02) will also be fully reconstructed before 2010, with works being already underway on the first section between Osh and Gulcha.

7. The continuation of the Project Road in Tajikistan territory to its capital Dushanbe, is also to be rehabilitated through ADB financing. The first section from Dushanbe to Nurobod is under construction, the rehabilitation of the second from Nurobod to Nimich is being tendered, and the third section from Nimich to the border is to be combined with the Sary Tash-Karamyk Project Road in the Kyrgyz Republic for a common regional ADB financing.

8. The following provides an overview of the Project Road's main characteristics:

- Location and Administrative Divisions. The Project Road is located in the southern area of Osh Oblast in two Rayons: Chon Alay Rayon and its main village of Daroot Korgon, and the southwestern part of Alay Rayon and the three villages of Sary Mogol, Taldy Suu and Sary Tash.
- Physical Features. The existing road Sary Tash - Tajik border goes through the Alay valley, which extends in an east-west direction between the Alay mountain ridge in the north and the Trans-Alay mountain ridge in the south. The length of the Alay Valley is 120 km and its width is up to 30 km. The flat bottom of the valley lies at the height of 3,200 m in Sary Tash and gently decreases westward to a height of 2,500 m in Karamyk. The Kyzyl Suu River, a tributary of the Amu Darya River, flows westward along the northern edge of the valley. The road is located along the river, mainly on its right bank. On the left bank of the valley a hilly ridge relief of old moraine sediments is present. The remainder consists of upper floodplain terraced ledges and flat flood plain areas, including numerous channels of the river. To the south the Trans-Alay mountain ridge extends towards the northern border of the Pamir Mountains; and it has an average height of 5,000-6,000 m above sea level, with Lenin Peak the highest at height of 7,134 m. Deep eroded canyons and river valleys cut through the north-facing ice-covered slopes of the Trans-Alay Mountains. To the north the valley is bound by the Alay mountain ridge with heights around 4,000-5,000 m. The southern slopes of the mountain ridge are deserted, very steep and almost without foothills. The drainage network of the valley is represented by the Kyzyl Suu River and its numerous tributaries, among which the following are the major ones: Taldyk, Sary-Mogol, Koksu, Kyzyl- Achyk, Achyk-Tash, Altyn-Dara, Shive, and Katta-Karamyk (Ak-Suu)
- The road in its present form is reported to have been built in the 1960's but the original track probably dates from much earlier. The road is generally located in flat terrain. Real mountainous terrain is only found between the village of Karamyk and the Tajik border. This latter section is by far the most difficult with a narrower width permitting generally only one lane. The road project design requires that the road be widened at this point to Class IV standards and will be re-routed to bypass the village of Karamyk in order to relieve traffic alignment restrictions and avoid possible relocation of residents and the expense of purchasing right of way.
- The existing road presents relatively smooth characteristics from the point of view of any geometrical design standards given the present low level of traffic. The existing cross sections were sometimes modified during the maintenance operations or damaged in places where they have been completely eroded away by river water. In some places the road has been

diverted into as-built bypasses that must be realigned and brought into conformity with the alignment. However, this allows low cost type rehabilitation works. The smooth geometric characteristics provide good visibility on most of the existing alignment. There are only a few sections of the road with “black spots”, and these are primarily visibility problems mainly related to insufficient passing visibility, and more rarely insufficient stopping visibility or lateral clearance. Most are not very serious, and according to the available accident statistics they have not been the cause of traffic accidents on this road. These safety issues will be minimized in so far as possible during the course of construction.

- The road follows the valley of the Kyzyl-Suu River for most of its length. The river is very active in some locations during the spring/summer snow melt season, thereby provoking severe erosion to both banks. Local sources claim that erosion of the alluvial banks of up to 50m-100m per season is not unusual. Very serious erosion problems exist especially in the zones km 114+000 - km 116+000 and Km 122+000 - km 125+000. The existing road includes 13 bridges, 2 of which cross the main Kyzyl-Suu River, and the others its tributaries. The first 24 kms of the road have a bituminous surface, while the remaining 116 km are gravel. The existing road pavement condition is generally very poor and will be replaced with 52 km of new bituminous surface. The remaining 84 km will be rehabilitated to provide a maintainable gravel wearing surface. The road passes through or in the vicinity of 15 villages and serves a population of more than 29,000 people. During the project, the existing road surface will be maintained by the contractor and will be incorporated into the Performance Based Maintenance (PBM) Program upon completion of the contract warranty period. The PBM Program calls for five-year contracts between the government and contractors, which will be partially funded by the grant from ADB.

### **3. ACTIONS TAKEN**

9. Actions taken after the submission of the previous environmental monitoring report in June 2009 included monitoring of the implementation of the EMP, as well as instrumental baseline measurements. The Engineer coordinated its environmental monitoring activities with the Contractor (Environmental and Safety Officer), local environmental authorities (Osh-Batken Interregional Department of Environmental Protection), and NGO “Biom”.

10. The Engineer discussed the program of baseline and routine environmental monitoring with the Contractor and Osh-Batken Interregional Department of Environmental Protection. The program proposed by the Engineer (for details please see Environmental Monitoring Report for June 2009) has been improved by the Department of Environmental Protection.

11. Baseline instrumental environmental monitoring activities included air and water quality assessments.

#### **3.1 Baseline Monitoring of Air Quality**

12. Baseline measurements of air quality have been made by the Osh-Batken Interregional Department of Environmental Protection (see Annex 2) as shown below.



Average daily concentrations of basic pollutants in air (baseline)

	Sary-Tash	Sary Mogol	Daroot Korgon	Karamyk
Dust (mg/m <sup>3</sup> )	0.15	0.19	0.17	0.16
Sulfur oxides (mg/m <sup>3</sup> )	0.05	0.07	0.06	0.05
Nitrogen oxides (mg/m <sup>3</sup> )	0.04	0.06	0.05	0.05

Note: Measurements are taken by Osh-Batken interregional department of environment protection (July 16, 2009)

13. The air quality is satisfactory except for dust. The maximum allowable concentration for dust (0.05 mg/m<sup>3</sup>) is exceeded by about 3 times. This can be explained by strong settled winds from the west in Alai valley that get off the ground considerable amounts of dust.

### 3.2 Baseline Monitoring of Water Quality (Chemical Analysis)

14. Osh-Batken Interregional Department of Environmental Protection has also completed baseline measurements of the water quality in Kyzyl-Suu river as shown below (also see Annex 2).

Average daily concentrations of basic pollutants in Kyzyl Suu river (baseline)

	Sary-Tash	Downstream bridge (km 92)	Downstream bridge km 132	Kyrgyz-Tajik border
Color	no color (settled water)	no color (settled water)	no color (settled water)	no color (settled water)
Odour (in points)	1	1	1	1
Transparency (cm)	0	0	0	0
Suspended particles (mg/l)	124.8	148	188	210
BOD5 (mg/l)	1.04	1.22	2.06	2.19
Dissolved oxygen mg/l	6.38	8.16	4.8	11.79
Oil products	no	no	no	no

Note: Measurements are taken by Osh-Batken interregional department of environment protection (July 16, 2009)

15. Maximum allowable concentrations (MAC) for BOD5 are not exceeded for any location (>3.00). Dissolved oxygen exceed MAC (>6.00) in all locations except downstream bridge near Karamyk (km 132). No oil products have been detected in water.

### 3.3 Baseline Monitoring of Water Quality (Macrozoobentic Analysis)

16. Samples for macrozoobentic baseline analysis have been taken in the frame of environmental monitoring program. Two samples of sludge from Kyzyl-Suu and Taldy-Suu rivers have been delivered to the laboratory of the Kyrgyz National University in Bishkek and analysed jointly by Non-Governmental Organization "Biom", and Department of Biology, Kyrgyz National University.

### 3.3.1 Sampling Points

17. Hydrobiological samples have been taken at two points:
- Point 1. Left bank of Kyzyl Suu river about 50 m downstream of Daroot Korgon bridge (km 98 of Sarytash-Karamyk Road) and about 200 m downstream of a planned asphalt plant;
  - Point 2. Right feeder of Taldy Suu river about 500 m downstream of a planned asphalt plant (km 27 of Sarytash – Karamyk Road).

### 3.3.2 Methodology and Materials

18. Hydrobiological analysis of water is based on different sensitivity of hydrobionts to saprobity<sup>2</sup> level of a water body. There are several ecological groups of aquatic organisms classified on basis of the above. These analyses were primarily based on qualitative assessment of macrozoobenthos and grouping them into the following divisions: olygosaprobic, beta-mesosaprobic, alpha-mesosaprobic, and polysaprobic (based on level of sensitivity to pollution level).

19. In accordance with the methodology selected for assessment of reservoir's saprobity level<sup>3</sup>, all aquatic organisms related to beta-mesosaprobic and alpha-mesosaprobic have been merged into one group (meta-saprobic organisms) in order to simplify the analysis. Initial assessment of hydrological system was carried out based on the method<sup>4</sup> of ecological interpretation of visual characteristics of water stream.

### 3.3.3 Monitoring Data

20. Data interpretation is based on assessment of samples taken on 30<sup>th</sup> September, 2009 as described below. Samples containing water and sludge were preserved in the sampling bottle under specific conditions until the day of analysis. The locations of samples (in total 2 points) are shown in Figure 1.

21. They were selected downstream of asphalt plants which will be commissioned during 2010 construction season.

22. *Point 1:* Left bank of Kyzyl Suu river about 50 m downstream of Daroot Korgon bridge (km 98 of Sarytash-Karamyk Road) and about 200 m downstream the asphalt plant).

- This sample consists of several group of organisms, including group *Plecoptera* with genus *Leuctra Steph.* Organisms of this genus prevail in the sample. Group *Ephemeroptera* is presented by genus *Baetidae*, Trichoptera - *Ecnomidae*. Dipterous organisms (*Diptera*) are presented mainly with *Chiromonidae*, (*Chiromonus sp.* and others).
- This kind of group distribution mainly relates to grouping of olygosaprobic and  $\beta$ - mesosaprobic substances indicating on uncontaminated or slightly polluted water of th stream.

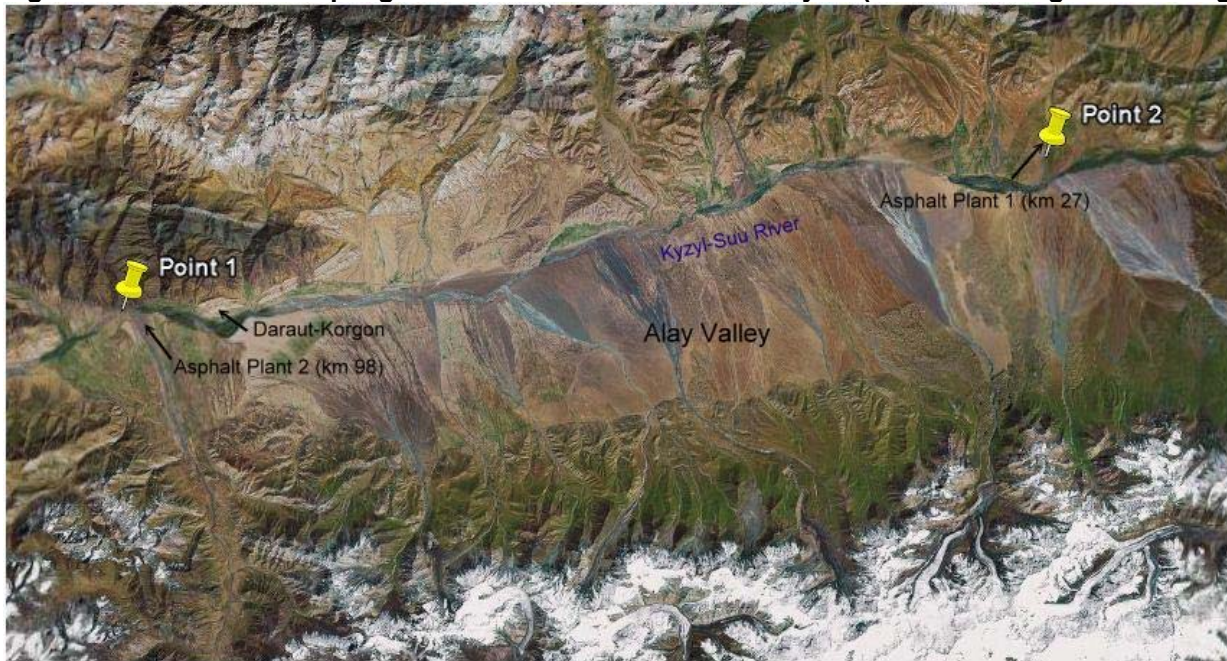
23. *Point 2.* Right tributary of Kyzyl-Suu River, about 500 m downstream of the asphalt plant (km 27 of Sarytash – Karamyk Road).

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<sup>2</sup> Saprobity (in Greek "saprós" - rotten) is a set of physiological properties of an organism conditioning its capacity for existence and development in aquatic environment with one or another organic substance at one or another pollution rate.

<sup>3</sup> "Living indicators of water bodies in Kyrgyzstan" manual for water quality assessment by I. Domashov, V. Korotenko and others

<sup>4</sup> "Recommendations on methods of hydrobiological monitoring of water bodies in Central Asia" by V. Talskih, 1997

**Figure 2: Location of Sampling Points for Macrozoobenthic Analysis (based on Google Earth image)**

24. The qualitative ratios of organism grouping found in benthos are as follows.
- Samples with *Diptera* group consist of *Stratiomyidae* genus. In addition, some specimens of *Nematoda* group have been found. There were also substances of *Ephemeroptera Baetidae* genus have been identified in the samples as well as shelly-ground organisms of *Ostracod* genus. Furthermore, specimens of *Chiromonus* sp. (*Diptera*) genus were found.
  - This kind of group distribution mainly relates to grouping of oligosaprobic and  $\beta$ - mesosaprobic and  $\alpha$ - mesosaprobic indicating slight pollution of river water at spot of sampling.

### 3.3.4 Conclusion and Recommendations

25. The presence of *Leuctra* and *Baetidae* in water streams indicates on a low level of water pollution. However, increasing of species diversity downstream enables conclusions about anthropogenic effects of adjacent areas.
26. Construction activities in the project area can change the rate of biocoenosis in Kyzyl Suu River and Taldy Suu River. Formation of large species (*Tubifex tubifex* from group *Diptera – Eristalis*) in non-circulating water or decelerating flow would indicate the water pollution. In addition, changes of type of accretion or fouling, formation of fungus or bacterial layers on bottom of water body or river stones as well as reducing the composition of water body inhabitants.
27. The following measures were recommended by NGO Biom for pollution prevention and preservation of river life:
- Installation of water-purifying system for waste water in accordance with standards of ecological and biological safety;
  - Adequately operating equipment and proper maintenance (technical control, repair of vehicles and restoration zones). In addition, facilities for collection of waste water, including rainwater with the following water treatment should be provided;

- Potable abstraction and withdrawal of water for other need should be maintained;
- Enhancement of hydrobiological control of water saprobity at specified spots during the construction and road maintenance activities should be provided;
- Installation of water treatment facilities, collection and water-purifying process by means of biocleaning modules.

### **3.4 Implementation of Environmental Management Plan**

28. Site Inspection Checklist reflecting the major issues and recommendations is provided in Annex 2. The following summarizes the key actions that have been implemented as per the approved EMP:

- The State Environmental Review was approved by Osh-Batken Inter-Regional Department of Environment Protection on 01/12/2008;
- Ecological Passport of the Construction of the Sary-Tash – Karamyk road was approved by Osh-Batken Inter-Regional Department of Environment Protection on 01/12/2008
- License Agreement for Sand/Gravel quarries have been concluded;
- Certificates for temporary land-use of land for quarries up to 2012 have been received;
- Borrow pits and quarries have been developed according to the recommendations of the EMP in terms of selecting the site to minimize/eliminate any disturbances to local resources,
- There is a common practice of minimizing the hauling distances from the borrow pits and reusing materials where possible,
- All borrow pits will be filled upon completion as per the instructions of the local authorities.
- Waste asphalt has been disposed at existing dump in Sarytash.
- The locations for asphalt plants were identified and asphalt plants installed in two locations. Proximity to residential settlements or natural resources has been taken into consideration as per the EMP.
- All materials are stocked in accordance to the EMP.

29. In terms of the health and safety and socio-economic requirements, the following summarizes key activities that are periodically monitored and reported:

- The site's day-book is kept by a nurse with regular inspections on keeping safety rules and documenting all relevant activities and events,
- Health and safety monitoring is conducted and recorded based on a pre-designed checklist,
- Job placement of local people is supported including poor women. However, share of local people is currently lower than 25%.
- Contractor maintains the by-laws of the local authority and requests of the Contract regarding to the labor protection, including appropriate working hours, on-time salary, providing working clothes and safety work conditions,
- There are no minor workers of school age that are employed,
- Contractor keeps the safety rules and occupational health records,
- The Contractor employs a doctor and two staff responsible for sanitary awareness are on staff,

- Protective equipments for all workers such as helmet, goggles, equipment for eyes protection, life-saving apparatus, fire extinguisher and first aid equipments are provided as needed,
- All the national holidays, and religious customs are observed,
- Information about sexually transmitted illnesses are distributed to workers in Kyrgyz, Russian, Chinese languages,
- Workers (including drivers and other staff) are provided with high quality condoms, lubricants, teaching booklets, systematic tests against sexually transmitted illnesses, and the workers have been provided with appropriate orientation of prophylaxes and treatment of STI and HIV/AIDS.

30. The following matrix (

Table 1) summarizes the key mitigation measures that have previously been identified, in addition to the M&E indicators. The matrix also summarizes progress on those indicators where applicable.

#### **4. NEXT STEPS**

31. Routine environmental monitoring of air and water quality in accordance with the environmental monitoring program should be carried out by the Contractor or sub-contracted independent monitoring organizations. In case of this project monitoring activities will be conducted by the Osh-Batken Interregional Department of Environmental Protection, and NGO Biom.

32. Noise monitoring (baseline and routine) should be carried out during construction activities in Daroot-Korgon.

**Table 1: Matrix of Impacts and Mitigation Measures**

Potential Impact	M&E Indicators	Actions Taken to Date
Erosion or sedimentation caused during clearing or earthworks	Linear length of silt fences installed Areas of vegetation undertaken Liner length of embankments treated Volume of excavation materials re-used Volumes of gabion baskets installed	The Contractor is currently re-using excavated materials near existing borrow pits, however, information on what volumes are being re-used have not been reported yet.
Soil erosion, land slide or rock fall		
Soil contamination from spillage of oil or other chemical substances	Number and frequency of storage facilities along the length of the alignment and proximity to camp sites Response time to leaks and maintenance programs of plants	Oil leaks have been observed around repair shops in construction camps.
Air pollution from dust or exhaust emissions (CO, NOx, SO <sub>2</sub> , etc)	Frequency of watering activities as per the construction schedule Proportion of covered truck trips and frequency of replacing covers Maintenance frequency of construction equipment including preventative maintenance	Watering activities at the construction sites is per construction schedule. Some 4 water tankers were used in the end of construction season 2009 for watering. All trucks were equipped with racks to retain cobblestones from falling, however, trucks are not covered with tarpaulin causing generation of fugitive dust. Construction equipment is maintained
Clearing of vegetated area	Areas of vegetation undertaken	No information on re-vegetation have been reported, however, such activities will not be necessary until certain sections of construction are entirely completed, which is not the case.
Exploitation of local resources incl. poaching of fauna	Locations and specifications of access roads Re-vegetation activities undertaken Frequency of tree protection measures (e.g., fencing) installed Training and awareness activities for workers relevant to the subject	There have been some awareness activities directed at the workers in relation to environmental protection.
Noise emissions from construction equipment	Vehicle and equipment maintenance programs Construction schedules in the vicinity of habitats and small communities Site maps of asphalt mixing relative to nearby communities and minimum distances from various resources to be continuously provided Communication plan and meeting logs with community representatives Frequency and quantity of gear and equipment dispersed to employees and staff	During 2009 construction season, construction equipment was employed far from settlements, except Sary-Mogol village. The schedule excluded construction works during night hours. No complains about noise were registered from local communities.
Changes to road safety / traffic movements, property access	List of signage installed along the alignment List and maps of access roads opened Communication plans and meetings with community representatives	Maintenance of detour roads during construction season 2009 was poor. They should correspond the specifications. There are road safety signs at several detour sites, but they do not comply with the specifications, in particular they lacking reflection elements.
Waste disposal problems from solid waste generated during construction activity or wastes generated in construction camps	Waste management plan for various sites Inventory of liquid storage sites and equipment Plans of drainage and disposal systems installed	The rubbish is collected in garbage pits at the territory of main construction camps (Section 1, km 26+700 and Section 2, km 101+200), and smaller campsites. Due to strong winds in the project area rubbish is blown out of pits and dispersed around the area. The territory of the construction camps is littery.
Disrupts commercial activities on roadside	Number of access facilities installed for this purpose Communication plan and meetings with community leaders	N/A yet
Construction workers cause social disruption or sanitation/health conditions	Monthly logs of inspections on hygiene of construction camps Training programs and numbers of trainees trained on the subject	Several awareness and educational activities have been underway, and specialists have been appointed by the contractor
Visual and landscape impacts	Landscaping plans and inventories of plantings put it	N/A yet
Employment or livelihood benefits from employment of local people	Numbers of employees hired locally in the various job descriptions for them	The Contractor is supporting job opportunities for local residents. Information on numbers of people employed has not been reported though.
Risks to public or cost construction worker health or safety	Monthly reports of the health and safety units	Monthly health and safety reports are being kept and submitted by the contractor.
Interference with existing infrastructure	Meeting minutes and correspondence with the relevant utilities	N/A yet
Water afflux in depressions along the road	Number and locations of temporary drainage facilities installed Program of cleaning activities of water drainage facilities	N/A yet

**ANNEX 1: SITE INSPECTION CHECKLIST (SEPTEMBER 2009)**

Activity	Observation (e.g., technical views, concerns of road users and local people, adequacy of monitoring and reporting, etc.)	Comment (e.g., does any activity violate ADB, national or international standard, responsiveness of contractor to complaints and engineer's instructions)	Corrective Action for Non-compliance	Comment (who should be taking corrective action and monitor)
<b>Quarry and blasting</b>	Location and level (%) of completion	<p>CRBC has requested local administration of Alai and Chong Alai Regions to allot land for quarries in the following locations:</p> <p>km 4+500, km 10+000            km 14+500, km 17+200            km 20+500, km 26+700            km 30+800, km 37+000            km 45+000, km 50+500            km 53+400, km 56+000            km 60+000, km 68+000            km 72+000, km 76+200            km 80+000, km 80+090            km 82+000, km 87+500            km 98+500, km 100+200            km 105+500, km 110+900            km 114+500, km 124+500            km 130+370</p> <p>The indicator of level of completion will be available in the end of the construction season.            No blasting operations is planned during 2009 year of construction</p>	Statistics on the level of completion of quarries should be collected in the end of the construction season.	Contractor is responsible for the collection of the statistics. Monitoring is by the Engineer.
<b>Licences and Permits</b>	Types of permits required, validity, and location of posting (office/site )	<ol style="list-style-type: none"> <li>1. Approval of the State Environmental Review from Osh-Batken Inter-Regional Department of Environment Protection of 01/12/2008;</li> <li>2. Ecological Passport of the Construction of the Sary-Tash – Karamyk road of 01/12/2008</li> <li>3. Licence Agreement for Sand/Gravel quarries</li> <li>4. Certificates for temporary land-use of land for quarries up to 2012</li> </ol>	No comments	No comments



Activity	Observation (e.g., technical views, concerns of road users and local people, adequacy of monitoring and reporting, etc.)	Comment (e.g., does any activity violate ADB, national or international standard, responsiveness of contractor to complaints and engineer's instructions)	Corrective Action for Non-compliance	Comment (who should be taking corrective action and monitor)
Rubbish collection	Location and adequacy of dumpsters and Skips	<p>The rubbish is collected in garbage pits at the territory of main construction camps (Section 1, km 26+700 and Section 2, km 101+200), and smaller campsites. Due to strong winds in the project area rubbish is blown out of pits and dispersed around the area.</p> <p>The territory of the construction camps is littery.</p>	<p>As was recommended in July's monthly report garbage should be collected in dustbin which should regularly be discharged into the garbage pit and covered with the thing layer of soil to avoid blowing out and contamination of the environment.</p> <p>The territories of the construction camps should be cleaned up.</p>	<p>No mitigation measures have been undertaken by the Contractor since July. The Contractor should take steps to clean up its construction camps of rubbish and introduce new system of garbage collection.</p>
Sewage disposal	At the site and camp. (eg. availability and adequacy of Portable Toilets, septic tanks)	The toilets at the main campsites (26+700 and 101+200) are earth closets.	No comments	No comments
Site access roads/Detours/haul roads	Location Length Surface Condition/Usability Safety (signs, speed, signs) Adequacy (traffic delays?) Dust control Noise control Vibration control Runoff	<p>Detours are due to construction of culverts and pipes at the following locations (with the lengths of detours):</p> <p>km 31+589 ( all around 500 m )                      km 31+826                      km 31+984 )                      km 32+780 (150 m)                      km 82+307 (80 m)                      km 87+734 (both around 180 m )                      km 87+800 )                      km 119+697 (90 m)                      km 120+003 (100 m)</p> <p>Maintenance of detour roads is poor. They should correspond the specifications. There are road safety signs at several detour sites, but they do not comply with the specifications, in particular they lacking reflection elements.</p>	<p>In accordance with specifications there should be at least 15 cm of gravel with compaction placed on detours. Also correspondent road safety signs should be installed from both ends of detours.</p>	<p>Contractor should be responsible for detour maintenance.</p>

Activity	Observation (e.g., technical views, concerns of road users and local people, adequacy of monitoring and reporting, etc.)	Comment (e.g., does any activity violate ADB, national or international standard, responsiveness of contractor to complaints and engineer's instructions)	Corrective Action for Non-compliance	Comment (who should be taking corrective action and monitor)
Wheel wash and outfall conditions	Availability of facilities	There is no facilities for wheel wash	Facilities for wheel wash should be considered for works conducted in towns	
Waste Storage	Locations Adequacy Cover (Tarpaulins) Frequency of disposal Runoff	Waste asphalt has been disposed at existing dump in Sarytash	No comments	No comments
Surface water drainage	Are drains installed? Any erosion? Any impact on water quality?.	For October 1, some 68 drains have been completed. Presently there are no problems with the erosion and impacts to water quality.	No comments	No comments
Discharge of runoff, sedimentation	Locations Condition of location.	No comments	No comments	No comments
Fuel and oil	Locations of storage facilities Notifications and signs Quantities at main site Availability and quality of spill and drip control Availability of fire extinguishers Availability of fire/emergency measures Methods of disposal of containers	Diesel and oil are stored at two main locations at km 26+700 and 101+200. There are two diesel tanks (40 cubic meters) at 101+200 and one tank at 26+700. Gasoline is purchased from filling stations. At 26+700 warning signs are non-standard and in Chinese, and at 101+200 are unclear and non-standard. There are about 6 fire extinguishers located at 101+200, and 26+200. Sand and correspondent fire extinguishing equipment is located far from the fuel facilities at 101+200. Diesel is filled up with a pump. Spills of diesel were found near tanks at 26+200. Oil and lubricants spills can be observed throughout all the territory of the repair shop	Clear notifications and signs should be arranged at fuel and oil facilities at 26+700 and 101+200. They should be compliant with international and local standards. Sand, fire extinguishers and other fire fighting equipment should be located closer to the filling sites. Regular trainings on fire prevention and safety should be organized for the relevant stuff.  Oil and diesel spills should be prevented by introducing a new system of spill control	Contractor should undertake corrective measures. Monitoring is by the Engineer and correspondent local authorities.

Activity	Observation (e.g., technical views, concerns of road users and local people, adequacy of monitoring and reporting, etc.)	Comment (e.g., does any activity violate ADB, national or international standard, responsiveness of contractor to complaints and engineer's instructions)	Corrective Action for Non-compliance	Comment (who should be taking corrective action and monitor)
Chemicals and dangerous goods	Locations of storage facilities Notifications and signs Quantities at main site Availability and quality of spill and drip control Availability of fire extinguishers Availability of fire/emergency measures Methods of disposal of containers	There are no chemicals and dangerous goods at the construction sites.	No comments	No comments
Plant and Equipment Noise	Level and control measures	There are a number of noise sensitive locations in Daroot Korgon (middle school, lyceum No.44, located close to the road to be rehabilitated). Presently there is no construction activity in the vicinity of the sensitive locations. No baseline instrumental noise measurements has been accomplished for the sensitive locations	Major manufacturers of sound level meters have been quoted to prepare a list of devices for procurement purposes	Contractor should organize monitoring of baseline noise levels prior to construction works will be started near the sensitive locations. A sound level meter should be procured on competitive basis
Dust (operational, material handling, traffic)	Locations Types of control measure(s) used Adequacy of control measure(s)	Dust generation occurs along the ROW including construction sites, quarry sites, and pre-fabrication yard. The contractor regularly waters the construction sites. However, as trucks do not have cover during transportation of dust generating materials and overspeeding there is dust problem in proximity to the construction sites.	The trucks transporting dust-generating materials should be covered by tarpaulin. No overspeeding is allowed.	Corrective actions should be taken by the contractor and monitored by the consultant.
Air Pollution (waste, vehicle/equipment emissions)	Locations Types of control measure(s) used Adequacy of control measure(s)	There are unorganized mobile sources of emission related to the alignment including movements of construction vehicles and operation of construction equipment. However, no serious problems related to the air pollution has been noted.	No mitigation measures are required besides those already being implemented.	No comments

<b>Activity</b>	<b>Observation (e.g., technical views, concerns of road users and local people, adequacy of monitoring and reporting, etc.)</b>	<b>Comment (e.g., does any activity violate ADB, national or international standard, responsiveness of contractor to complaints and engineer's instructions)</b>	<b>Corrective Action for Non-compliance</b>	<b>Comment (who should be taking corrective action and monitor)</b>
Waste (disposal, licence, disposal records, spillages)	Location and adequacy of sites Site control and monitoring Impact of site access	No comments	No comments	No comments
<b>Other</b>	Social issues	According to the particular conditions of the contract at least 50% of the direct unskilled and semi-skilled labour force required for the contract shall be Kyrgyz nationals from the vicinity of the site. Presently, a bit more than 10% of the employees are Kyrgyz nationals.	The amount of the labour of Kyrgyz nationality should be substantially increased.	The corrective action is by the Contractor and monitoring by the Engineer
<i>Inspection Completed By</i>	<i>Designation</i>		<i>Signature</i>	
<i>Non conformance</i>		<i>Date(s)</i>		<i>Ref No</i>

**ANNEX 2: REPORT OF BASELINE ENVIRONMENTAL ANALYSIS**

Кыргыз Республикасынын Өкмөтүнө  
караштуу курчап турган чөйрөнү коргоо  
жана токой чарбасы боюнча  
мамлекеттик агенттик



Государственное агентство по охране  
окружающей среды и лесному хозяйству  
при Правительстве  
Кыргызской Республики

Ош-Баткен аймак аралык курчап  
турган чөйрөнү коргоо башкармасы

Ош-Баткенское межрегиональное  
управление охраны окружающей среды

714018, Ош шаары, Курманжан Датка коч. №130  
тел.: (996-3222) 2-51-88, факс: 2-51-89

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№ 01/497.18.08 2009г.

Министерство транспорта и коммуникаций  
Кыргызской Республики

Китайская Компания Чайно Род

Ош-Баткенское межрегиональное управление охраны окружающей  
среды направляет экологический мониторинг исходного состояния  
окружающей среды (инструментальный мониторинг) реабилитируемой  
участка автодороги Сарыташ-Карамык, согласно Плана мониторинга.

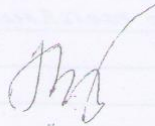
Приложение: Протокол анализа проб атмосферного воздуха 1 лист.  
Протокол анализа проб воды 1 лист.

Заместитель начальника управления  И.Сарыбаев.

*Получил на базе.р. эк.  
Ф.Султ. 19.08.09.*

Наименование ингредиентов	Данные по точкам			
	Средне суточная			
Взвешенные вещества в аэрозоле - (твердые частицы, пыль неорганическая) $мг/м^3$	Сарыташ, Жамагкорму, Сарымоюн, Карамак.			
окислы азота $мг/м^3$	0,15	0,14	0,19	0,16
Окислы серы $мг/м^3$	0,04	0,05	0,06	0,05
	0,05	0,06	0,07	0,05

Зав.отделом мониторинга



Д.Аманбаева

Инспектор мониторинга

М. Гоголева.

Перепечатка протокола без разрешения испытательной лаборатории запрещена.  
Протокол испытаний касается только образцов, подвергнутых испытаниям.

Наименование ингредиентов	Данные по точкам			
	64	65	66	67
Температура				
РН				
Цвет	<i>0,56 (ore)</i>	<i>0,56 (ore)</i>	<i>0,56 (ore)</i>	<i>0,56 (ore)</i>
Запах в баллах	<i>10</i>	<i>10</i>	<i>10</i>	<i>10</i>
Прозрачность <i>cell</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>	<i>0,0</i>
Взвешенные вещества <i>мг/л</i>	<i>124,8</i>	<i>148</i>	<i>188</i>	<i>210</i>
Ртуть				
БПК <sub>5</sub> <i>мг/л</i>	<i>1,04</i>	<i>1,22</i>	<i>0,06</i>	<i>2,19</i>
Окисляемость перманганатная				
Азот аммонийный				
Азот нитритный <i>мг/л</i> <i>какт. микрог</i>	<i>6,38</i>	<i>8,16</i>	<i>4,8</i>	<i>11,79</i>
Азот нитратный				
Фосфаты				
Хлориды				
Сульфаты				
Жесткость				
Нефтепродукты	<i>отсутствуют</i>			
СПАВ				
Железо				
Медь				
Сухой остаток				
Эфирокстрагируемые вещества				
Эффективность работы очистных сооружений				

Зав. отделом мониторинга  
Специалист



Д. Аманбаева  
Р. Омарова

Перепечатка протокола без разрешения испытательной лаборатории запрещена.  
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