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The Kyrgyz Republic: CAREC Regional Road Corridor Improvement Project Environmental Report # 5

Prepared by the Ministry of Transport and Communications of Republic of the Kyrgyz Republic March 2013



This report is an update to the Environmental Report. It is designed for ready use by the project executing agencies to provide direct input into ADB's internal Project Progress and Project Completion Reports.

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ENVIRONMENTAL MONITORING AND EVALUATION REPORT KARAMYK-SARY TASH ROAD March 2013

1.0 Background and Introduction

There is a growing awareness that road development projects could have major environmental impacts, and the Karamyk-SaryTash Road is no exception. Some of the major environmental impacts of road projects include damage to sensitive ecosystems, loss of productive agricultural lands, resettlement of affected communities, permanent disruption of local economic activities, demographic changes, accelerated urbanization and the introduction of disease.

Road projects are generally intended to improve the economic and social welfare of people. Increased road capacity and improved pavements can reduce travel times and lower the costs of vehicle use, while increasing access to markets, jobs, education and health services and reducing transport costs for both freight and passengers.

For all the positive aspects of road projects, they may also have significant negative impacts on nearby communities and the natural environment. People and properties may be in the direct path of road works and affected in a major way. People may also be indirectly affected by road projects, through the disruption of livelihood, loss of accustomed travel paths and community linkages, increases in respiratory problems due to air pollution, loss of access to resource products (medicinal plants, wild fruit trees, grazing areas for cattle etc.) and injury from road accidents.

Disturbance to the natural environment may include soil erosion, changes to streams and underground water, and interference with animal and plant life. Temporary impacts during construction are also common and require specific mitigation to minimize them, e.g. keeping dust levels down during road pavement preparation through the use of water browsers to minimize health and safety impacts to nearby communities.

Failure to identify potential impacts may result in delays and cost increases later in the project's development. Neglecting to account for impacts may also cause the road designers to adopt solutions that compromise the environment. Poor environmental management has been shown to produce negative public perception of road projects, creating additional for those projects still to come. The following are some measures undertaken to minimize/eliminate such negative impacts:

1.1 Environmental Assessment (EA)

An EA is not aimed solely at identifying the negative impacts of a project in the context of the area it is being planned in, but also optimizes the positive effects of the project. Just as good road project planning, management and execution requires well trained professional transportation engineers, technically credible environmentally sensitive, road EA's require experienced environmental professionals supporting the engineering team. Such personnel should be brought into the project development process at a very early stage.

1.2 Mitigation

Mitigation is the lessening of negative environmental impacts through: (a) changes in the design, construction practices, maintenance, and operation of the road; and (b) additional actions taken to protect the biophysical and social environment, as well as the individuals who have been impacted adversely by a project. Some aspects of mitigation can be incorporated into project design and can largely resolve the threat of impacts before construction begins. However many measures require a ongoing implementation plan to ensure that proposed actions are carried out at the correct times, that environmental measures such as grass planting and slope protection are maintained and that prompt remedial actions are taken when the initial measures are not fully successful.

1.3 Compensation

Compensation should be considered if steps to reduce impacts are not possible or sufficient. Compensation can be material (reconstruction of homes or natural environment), financial (compensation for loss of property), or a combination of both.

1.4 Monitoring

The implementation of mitigative measures is often the weakest link in the environmental management process. Any EA study needs to identify plans for works supervisors (design and supervising engineers), future environmental monitoring and evaluation studies. Once implemented these should ensure the full implementation of the mitigation measures.

While an EA and a mitigation plan have been conducted for the Karimek-SaryTash Road, the need for periodic monitoring to ensure compliance with the mitigation plan is necessary. The report at hand presents the findings of an environmental monitoring visit to the project site undertaken by the TERA international and national environmental experts in October 2010. The findings of the assessment were compared against the main components of the Contractor's environmental management and monitoring plan, and the mitigation action per good practice. Those findings are presented, along with recommendations in the following sections.

2.0 Environmental Management Provisions in the Contractor's EMP versus Field Observations

At the beginning of the project, the conditions to be implemented and applied by the Contractor (China Road and Bridge- CRBC) to avoid adverse impacts on the environment and communities in the vicinity of the Site caused by the Project are summarized in Matrix 1 below.

Valued Environmental	Mitigative Measures to be Implemented by CRBC
Component	
	 Adhere to Kyrgyz Government's pollution control guidelines and standards (see Appendix); Prohibit the open burning of waste or materials; Ensure that construction equipment will be maintained to a good standard and fitted with pollution control devices. Discourage the idling of engines;
	 Prohibit the use of equipment and machinery that causes excessive pollution (i.e. visible smoke) at the Site; Ensure that all vehicles transporting potentially dust-producing material will not be overloaded,
Air Quality	 will be provided with adequate tail-boards and side-boards; Not permit the operation of hot-mix, asphalt, aggregate or concrete plant in close proximity of populated settlements nor within 500m of sensitive uses
	 Locate material stockpiles in sheltered areas and cover them with tarpaulins or other such suitable covering to prevent material becoming airborne;
	 Undertake regular watering/spraying of the project road, especially in the vicinity of the villages/settlements, and any roads being used for haulage of materials during the dry season; Prepare, and submit to the Engineer for approval, a dust suppression plan.
	Undertake periodic air quality monitoring Prevent interference with natural water flow in rivers, water courses or streams within or
	 adjacent to work sites, Protect water courses, rivers, streams, lakes, drains, canals and ditches within and adjacent to the Site from pollution
	 Ensure that any temporary constructions are located at least 50m from water courses, Include sediment controls such as silt fences, coffer dams and silt barriers
	 Not permit the discharge of sediment laden construction water or material Store hydro-carbons, petroleum products to be used in bitumen mixes, and other chemicals in secure and impermeable containers or tanks located away from surface waters.
Water Quality	Equip construction work camps and site offices with sanitary latrines that do not pollute surface waters;
	 Engage a suitable qualified organization to undertake a baseline and water quality monitoring as required by the Contract. Give priority to locating material stock-piles, borrow pits and construction camps on unused land and non-agricultural land.
	 Monitor embankments during construction for signs of erosion; Not permit random and uncontrolled tipping of spoil andre-vegetate exposed areas including; As per the requirements of the Contract only licensed quarrying operations will be used for material sources.
	 Locate borrow areas outside the right-of-way; Restore all borrow pits, following the completion of works, in full compliance with all applicable standards and specifications;
	 Ensure all equipment, especially exhaust systems, be maintained in good working order and that regular equipment maintenance will be undertaken;
	 Prepare a schedule of operations that will be approved by the Engineer. The schedule will establish the days and hours of work for each construction activity and identify the types of equipment to be used;
Noise and Vibration	 Prohibit any construction activities between 10pm and 6am in settlements or close to sensitive receptors such as hospitals and schools;
	 Consult with the community in respect of construction activities and potential noise and vibration impacts. Use blasting mats to reduce noise during blasting operations;
	 Undertake a baseline and monitoring of levels of noises and vibrations. CRBC will engage a suitable qualified organization to undertake a baseline and noise and vibration monitoring as required by the Contract. Monitoring will be conducted in at least two sites per village along the road and other sites as required by the Engineer.
Fuel and Chemicals Storage	Strictly control filling and refuelling, and subject the same formal procedures to avoid leakage or spills; Store all inflammable and chemical agents in waterproof and secure tanks, Ensure that the contents of any drums, tanks or vessels are clearly marked; Ensure that all fuel valves and trigger guns will be located so as to avoid interference and vandalism,
	Take all necessary measures to ensure that no contaminated discharges enter any drain or watercourses;

Waste Management	Prohibit the discharge of polluted or hazardous materials or chemicals to the ground or water sources; Store liquids in tanks or drums that are not able to spill or discharge to water courses or streams; Construct temporary treatment and drainage systems to collect and discharge liquid wastes. Prohibit the dumping of unsanitary material, waste-water, chemicals, soil, waste oil and chemicals, fuel, lubricating oil etc. Construct and rehabilitate all temporary drainage systems and take all measurements to prevent flooding or damage associated with flushing during work activities; and Ensure that construction workers and staff are aware of, and comply with, the provisions of HSEMP and the Contract in respect of liquid and solid waste management.
Revegetation and Landscaping	CRBC will be responsible for landscaping and re-vegetation of the Site as per the requirements of the Contract, especially the provisions of Section 8.6 of Bidding Documents Volume II Section 6a.

2.1 Field Observations during First Field Inspection 2013

In March 2013, the local Environmental Expert visited the project site and conducted an inspection for the main facilities as it relates to the environmental management aspects presented in the original CRBC plan.

Generally, the conditions at the site were acceptable and met the requirements of the EMP with some minor noncompliance at the Team 1 site in terms of oil and tar spillages. There are also some concerns regarding the hygiene conditions of the workers facilities that should be improved for better public health and sanitation conditions at the site. Observations made during the visit are described below at the appropriate sections of the report.

The following observations were made as per the various environmental components.

- 1. Team 1 workers have not been fully deployed at the site yet. The China Roads company Project Manager is waiting for the arrival of the workers. The toilet and latrine facilities were judged to be in an acceptable condition in terms of cleanliness. The water reservoir, located behind the residential houses is also clean and does not create any apparent sanitary problems. However, the reservoir, which had been used for dust suppression contains solid waste and garbage. The Consultant instructed to clean it up before the works for this year's season start.
- 2. At the Team 2 worker camp: Everything is clean, and the places where the works on repairing machines or refueling oil is conducted are properly covered by concrete. Soils are well protected against the penetration of industrial oils and fuels. The only observation made by the Consultant related to the fact that the enclosing ditch around the perimeter of the camp, contains household garbage along its entire length (especially the parts close to the gate).
- 3. The remaining parts of the pit do not contain waste and are clean. It was noted that local worker staff had been using this trench for garbage collection and disposal. The Consultant pointed out the need to clean out the garbage from the trench. Also, the Consultant pointed out that it was not permissible if the waste would remain at the bottom of the trench, and would be covered with a thick layer of soil. The disposed solid waste was noted to contain many items made of plastic and foam, which are not biodegradable. Therefore, this waste should be collected in one place and destroyed/burnt according to the national standards and requirements. Those parts that are subject to decomposition in the environment can be buried or burned.
- 4. Contractor should carry out some works to clean contaminated soil, remove solid waste and level the borrow pits during April-May 2013. Then Consultant's National Environmental Expert will again visit the site to inspect and fix the existing environmental conditions. If National Expert does not find any noncompliance he will consider that environmental situation is acceptable. After the visit of national expert Contractor within a week should submit a report about carried out works. Thus, the end of June 2013 is considered to be the deadline for submission of Contractor's report about works carried out to meet environmental and ecological requirements.
- 5. Visiting the site for the production of bitumen and fillers Team 2, revealed that the situation with the spillage of industrial oils and tar has worsened when compared to last year's conditions. The Consultant identified numerous and large enough spots

- of tar spill and industrial oils in places where the covering protection (concrete bottom or protective film) is not provided.
- 6. The CRBC Project manager was informed regarding the violations and pollution of the natural environment. The Project Manage promised that within a week all violations will be rectified.
- 7. After consultation with staff SAEPF, it was decided that all contaminated soil will be collected in one place on an impermeable layer until a decision is made on the appropriate method for disposal, treatment, or remediation. Alternative decision more appropriate in terms of ecology may include treatment of polluted soil by fuel and oil spillage with glauknite polluted soil should be covered by this material 3 cm thick layer and 2 cm thick layer of gravel to prevent glauknite's blow-off by wind.
- 8. In accordance with existing practice in the KR, contaminated soil is usually collected and disposed at an authorized waste landfill. No further treatment is usually performed in relation to such sort of soils. However, due to the fact that in the vicinities of Daroot-Korgon, there are no authorized landfills for household waste, it is necessary to consider the possibility of disposal the soil in the areas with no access for local people, domestic animals, or close to the surface and high water table. The contractor is requested to investigate possible solutions for soil remediation and presenting them to the Consultant for consideration.
- 9. Decision on polluted soil utilization will be coordinated with Osh Oblast Department for Ecology during April-May 2013.

The observations made by the National Expert were delivered to the CRBC representatives and they were requested to rectify all noncompliant practices.

Additional information about borrow-pits:

There are 21 borrow pits on the site. The table indicating their locations is given below. It should be noted that they are located in river terrace of Kyzyl-Suu river with cutting depth 5-6 meters, size 80x100 meters and calculated for output production 40 000m³ each.

Nº	km	Borrow-pit location in relation to the road
1.	10+000 км	LHS 50
2.	18+000 км	LHS 70
3.	24+700 км	LHS 70
4.	28+500 км	LHS 80
5.	32+900 км	LHS 60
6.	37+000 км	LHS 60
7.	48+000 км	LHS 50

8. 48+500 км LHS 50 9. 53+000 км LHS 70 10. 57+000 км LHS 80 11. 62+500 км LHS 80 12. 68+500 км LHS 80 13. 71+300 км LHS 80 14. 77+000 км LHS 80 15. 80+000 км RHS 70 16. 82+200 км RHS 70 17. 89+000 км LHS 60 18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60			
10. 57+000 км LHS 80 11. 62+500 км LHS 80 12. 68+500 км LHS 80 13. 71+300 км LHS 80 14. 77+000 км LHS 80 15. 80+000 км RHS 70 16. 82+200 км RHS 70 17. 89+000 км LHS 60 18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	8.	48+500 км	LHS 50
11. 62+500 км LHS 80 12. 68+500 км LHS 80 13. 71+300 км LHS 80 14. 77+000 км LHS 80 15. 80+000 км RHS 70 16. 82+200 км RHS 70 17. 89+000 км LHS 60 18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	9.	53+000 км	LHS 70
12. 68+500 км LHS 80 13. 71+300 км LHS 80 14. 77+000 км LHS 80 15. 80+000 км RHS 70 16. 82+200 км RHS 70 17. 89+000 км LHS 60 18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	10.	57+000 км	LHS 80
13. 71+300 км LHS 80 14. 77+000 км LHS 80 15. 80+000 км RHS 70 16. 82+200 км RHS 70 17. 89+000 км LHS 60 18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	11.	62+500 км	LHS 80
14. 77+000 км LHS 80 15. 80+000 км RHS 70 16. 82+200 км RHS 70 17. 89+000 км LHS 60 18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	12.	68+500 км	LHS 80
77+000 км	13.	71+300 км	LHS 80
16. 82+200 км RHS 70 17. 89+000 км LHS 60 18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	14.	77+000 км	LHS 80
17. 89+000 км LHS 60 18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	15.	80+000 км	RHS 70
18. 105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	16.	82+200 км	RHS 70
105+800 км LHS 50 19. 109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	17.	89+000 км	LHS 60
109+000 км LHS 50 20. 110+500 км LHS 60 21. 114+000 км LHS 60	18.	105+800 км	LHS 50
110+500 км LHS 60 21. 114+000 км LHS 60	19.	109+000 км	LHS 50
114+000 kM LHS 60	20.	110+500 км	LHS 60
	21.	114+000 км	LHS 60
21 Borrow Pit		21 Borrow Pit	

According to China Roads, all borrow-pits were recultivated and taking-over documents were signed by Ayil Okmotu (village council). Ayil Okmotu, taking over the borrow-pits, has no claims about their conditions. Re-cultivation of borrow-pits was carried out on the base of relevant design/

2.3 Reporting of Indicators as Per Good Environmental Practice

The following Matrix is a guide on the environmental indicators that are to be provided by the Contractor. It had been submitted to the Contractor in 2008, however, it has not been totally satisfied. The Contractor shall periodically provide those indicators in regular reports to be reviewed by the National Expert, and verified by the International Expert.

Potential Impact Mitigation Action Per IEE & Good Practice		M&E Indicators	
Erosion or sedimentation caused during clearing or earthworks	Utilization of sediment measures such as silt fences to trap sediment before it enters waterways Undertake progressive re-vegetation of cleared areas Avoid clearing activities during the rainy season where possible	areas	
Soil erosion, land slide or rock fall	Undertake progressive re-vegetation of cleared areas Embankments in areas of steep slopes to be stepped Side slopes of cuttings and embankments designed to reflect soil strength etc Re-use excavated material wherever possible Rip-rap, retaining structures, gabion baskets etc to be used wherever necessary for slope and river-bank protection		
Soil contamination from spillage of oil or other chemical	Store chemicals in secure area/compound, with concrete floor and weatherproof roof	Number and frequency of storage facilities along the length of the alignment and proximity to camp sites	
substances	Ensure construction plant are maintained in good condition and any leaks are quickly repaired	Response time to leaks and maintenance programs of plants	
Air pollution from dust or exhaust emissions (CO, Nox, Sox, etc)	Implement dust suppression measures including watering of exposed surfaces Cover all trucks carrying dispersible materials to or from the site Minimize size and duration of cleared areas Ensure all construction vehicles and equipment are well maintained	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	
Clearing of vegetated area	ed Undertake progressive re-vegetation of cleared areas with fast-growing, native species Avoid the felling of road-side trees wherever possible Areas of vegetation undertaken		
Exploitation of local resources incl. poaching of fauna	Poaching of fauna or felling trees that are not required to be cleared or removed by the project within the project areas will be forbidden Contractor will impose sanctions on any worker poaching fauna or felling trees unnecessary for the project works	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	
	Ensure all construction vehicles and equipment are well maintained	Vehicle and equipment maintenance programs	
	As far as possible limit noisy construction activities to day time hours in the vicinity of houses and hospitals and to night time hours in the vicinity of schools	Construction schedules in the vicinity of habitats and small communities	
Noise emissions from construction equipment	Fresh concrete and asphalt mixing stations must not located nearby residential areas, schools and hospitals	Site maps of asphalt mixing relative to nearby communities and minimum distances from various resources to be continuously provided	
	Inform nearby community of schedule and duration of construction works	Communication plan and meeting logs with community representatives	
	Provide workers with noise abatement equipment (ear-muffs etc	Frequency and quantity of gear and equipment dispersed to employees and staff	
	Install signage and lighting in vicinity of works on road	List of signage installed along the alignment	
Changes to road safety / traffic	Install temporary access to affected properties Reinstate good quality permanent access to affected properties on completion of construction works	List and maps of access roads opened	
movements, property access	Notify nearby community of schedule and duration of construction works	Communication plans and meetings with community representatives	
NA (()	As far as practical, limit construction vehicle movements to main transport routes and avoid movements in peak hours	l w	
Waste disposal	aste disposal Prepare and implement "waste management plan" Waste management plan for various sites		

problems from solid waste generated	Train construction workers in appropriate waste disposal methods	Inventory of liquid storage sites and equipment
during construction activity or wastes	Remove waste regularly from site for disposal to landfill	Plans of drainage and disposal systems installed
generated in construction camps	Install waste collection and temporary storage facilities in construction camps	
	Wastewater systems from construction camps must not discharge into water bodies which are use for water supplies for domestic and industrial purposes	
	Install temporary access to affected Properties	Number of access facilities installed for this purpose
Disrupts commercial activities on roadside	Reinstate good quality permanent access to affected properties on completion of construction works	
	Notify nearby community of schedule and duration of construction works	Communication plan and meetings with community leaders
	Ensure construction camps maintained in clean/hygienic conditions, implement "waste management plan"	Monthly logs of inspections on hygiene of construction camps
Construction workers cause social disruption or sanitation/health conditions	Train workers on appropriate interactions with local community and institute awareness program about sanitation and communicable diseases. Implement HIV awareness and prevention campaign (incl. HIV in the Workplace training for workers)	Training programs and numbers of trainees trained on the subject
	Consult with local authorities to plan construction worker housing arrangements	
Visual and landscape impacts	Implement low maintenance landscaping along roadside	Landscaping plans and inventories of plantings put it
Employment or livelihood benefits from employment of local people	Maximize the number of local people involved in the construction works	Numbers of employees hired locally in the various job descriptions for them
Risks to public or cost construction worker	Provide safety equipment to workers and train them in its use	Monthly reports of the health and safety units
health or safety	Secure construction site and restrict access by local community	
Interference with existing infrastructure	Consult with subproject engineering staff to minimize physical impacts on public infrastructure and disruption to services	Meeting minutes and correspondence with the relevant utilities
Water afflux in depressions along the road	Provide proper cleaning to remove silt from the channels and maintain the channeling on the permanent basis in future	Number and locations of temporary drainage facilities installed Program of cleaning activities of water drainage facilities
	Provide better conditions for water drainage in the areas where usually the water afflux occur	

Appendix 1 - Ambient Air Quality Standards in Kyrgyzstan

Pollutant	Maximum Permissible (mg/m3)	Average Daily Concentration (mg/m3)
Particulate Material:		
With silica content > 70%	0.15	0.05
70 - 20% (cement, coal, clay, etc.)	0.3	0.1
< 20 % (dolomite, etc.	0.5	0.15
Cement dust (Calcium oxide > 60% and silica >20%)	0.5	0.05
Sulfur Dioxide SO ₂	0.5	0.05
Carbon monoxide	5	3
Nitrogen Dioxide NO ₂	0.085	0.04
Nitrogen Oxide NO	0.40	0.06
Lead (Pb) and compounds (except tetra ethyl)	-	0.0003
Lead sulphorous (in terms of Pb)	-	0.0017

Source: Kyrgyz Agency on Hydrometeorology

To avoid adverse impacts from noise and vibration CRBC will:

Appendix 2 - Ambient Outdoor Noise Standards in Kyrgyzstan

Activity Category ¹	L _{eq} ²	L _{max} ³	Description of Activity Category	
8	Day = 45	7 7		
0	Night = 35	Night = 50	sanatoriums	
9	Day = 55	Day = 70	Areas immediately adjacent to dwellings, polyclinics, dispensaries, rest homes, holiday hotels, libraries, schools, etc	
9	Night = 45	Night = 60		
40	Day = 60	Day = 75	Areas immediately adjacent to hotels and	
10	Night = 50	Night = 65	Areas immediately adjacent to hotels and dormitories	
11	35	50	Recreational areas in hospitals and sanatoriums	
12	45	60	Rest areas at the territories of micro-districts and building estates, rest houses, sanatoriums, schools, homes for the aged, etc	

Source: Information Publishing Center of Goskomsanepidnadzor (Russian Federation, 1994)

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Activity Categories 1 to 7 relate to indoor standards. The standards provide for allowable noise levels to be reduced in "green areas" or other designated sensitive areas.

 $^{^{2}}$ L_{eq} = the sound level equivalent,theL $_{eq}$ represents the level of steady sound which, when averaged over the sampling period, is equivalent in energy to the fluctuating sound level over the same period.

³ L_{Max}= maximum sound level.

Appendix 3 -Sample Photos from Site Visit



Picture 1. Toilet at Team 1 is clean



Picture 2. Water reservoir for dust suppression at the Team1 that contains garbage



Picture 3. Team 2: Spots of oil are numerous and big



Picture 4. Team 2: Spots of oil are numerous and big



Picture 5.The enclosing ditch at Team 2 gates with garbage



Picture 6. Team 2 example: ground is properly covered with concrete to protect against oil and tar spillage



Picture 7. Asphalt plant at Team 2: numerous and big enough spots of tar at the ground



Picture 8. Team 2 ground: numerous and big spots of oil were found where there were not any protective coverage/cement coating

Report on visiting the Site by the Local Environmental Consultant in March 27-28, 2013

According to the accepted mode of environmental inspecting the ST-KM Road, the National Environmental consultant has visited the Site. During the Liability period the Environmental Team will be intently check all the violations of environmental approaches at the Site and require their reclaiming.

First of all, a certain concern is oil and fuel spillages that were observed in many places of Team-2 area, as well as at Asphalt Plant Team-1. In comparison with the 2012 situation, they have become more in number and bigger in size. The CRBC responsible staff has to observe all the environmental requirements and treat the soil and ground pollution issues appropriately. Nevertheless, now the situation in terms of spillages has worsened (see pictures below).



Picture 9. Spillages of fuel and oil materials at Team-2 location.



Picture 10. Spillages of fuel and oil materials at Team-2 area





Picture 11. Spillages of fuel and oil materials at Team-2 area

Picture 12. Spillages of fuel and oil materials at Team-2 area

The National Environmental Consultant also found that glass (numerous empty alcohol bottles) and paper box garbage was disposed at an improper place right near the road in a trench going down towards the river flood land (see picture 13 below).



Picture 13. Empty alcohol bottles and paper box garbage disposed near the road

Landfill established in the flood land of the river (see picture 14) has to be re-cultivated. Until it is not brought into environmentally appropriate conditions, it creates a risk of its washing-out into the river during high-water periods and polluting the river and lands downstream.



Picture 14. Landfill at the left bank of the Kyzyl-Suu River

The garbage issue is also typical for the Team-2 area: although the situation is better than it was previously, it requires additional cleaning of the territory after decommissioning the work camp.

Another area of concern is a quarry with rather steep slopes that needs to be leveled with a grader. The current condition causes possible risks in terms of human health, ground and soil erosion due to weathering, and safety for the electric transmission line. Also a small road for servicing the transmission line passes in the direct vicinity of the quarry.



Picture 15. Quarry at the left bank of the River.

Recommendations:

- Quarry location must be put into a safe condition; its slopes should be leveled to prevent future
 erosion processes and possible accidents. The surface of the leveled slopes should be planted with local
 grass/crops.
- 2. Garbage at the work camps should be properly collected and disposed in a single place free of risk

to be washed out and/or disperse by the wind.

3. Soils and grounds polluted by the oil and fuel spillages at the work camps and asphalt plants must be cleaned up with glaukonite. The glauknite should be brought from its deposit in Batken Province (south of Kyrgyzstan) and all the spots of fuel pollution should be covered by this material with 3 cm thick layer and 2 cm thick layer of gravel to prevent glauknite's blow-off by the wind.