# Semi-annual Environmental Monitoring Report

Project Number: SRIP/CS/QCBS-01

Reporting time period July 2018- December 2018

# Republic of Georgia: Rehabilitation of Dzirula – Kharagauli – Moliti – Pona – Chumateleti Secondary Road Section (50 Km)

Financed by the Asian Development Bank

Prepared by:	SC Roads Rehabilitation and Modernization Supervision Direction Ltd, Shalva Bosikashvili, Environmental Specialist
For:	Roads Department, Ministry of Regional Development and Infrastructure of Georgia (Executing Agency)
Endorsed by:	Levan Kupatashvili, Deputy Chairman

January 2019

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# **ACRONYMS & ABBREVIATIONS**

ADB	Asian Development Bank
SEMP	Specific Environmental Management Plan
DR	Department of Roads
DNP	Defects Notification Period
EA	Executing agency
EMP	Environmental Management Plan
EMS	Environmental Management System
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IEE	Initial Environmental Examination
km	Kilometer
Ministry	Ministry of National Development and Infrastructure
PCU	Project Coordination Unit
PIU	Project Implementation Unit
PMU	Project Management Unit
SSEMP	Site Specific Environmental Management Plan
TOR	Terms of Reference

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## 1 INTRODUCTION

## 1.1 Preamble

1. This report represents the Semi – Annual Environmental Monitoring Review of Dzirula – Kharagauli – Moliti – Pona – Chumateleti Secondary Road Section (50 Km) Rehabilitation Project.

2. This report is the second Semi-annual EMR for the project.

## **1.2 Headline Information**

3. Project design review and construction activities have been commenced in September 18, 2018. There is protected area near the project related road section. The shortest distance between Borjomi-Kharagauli National Park (BKNP) and the existing project road is approximately1.3 km. BKNP is separated from the existing project by a river gorge, which prevent the transposition of flora and fauna. Therefore, the project will have no direct impacts on the biodiversity of the BKNP. However, construction contractor should select appropriate access roads to avoid disturbance of the protected area and provide site staff with special training to prevent poaching.

4. So far, significant non-compliances have not been identified. During the site HSE inspections unacceptable housekeeping was detected at some places. Issues identified during the reporting period are minor, as indicated below in the report.

5. It is envisioned, that the road, when improved, will enhance connectivity to a number of towns and villages at the foothills of the mountain ranges and can act as alternate route to parallel segments along E-60. Also, positive impact of the project is local population's involvement in the road construction process.

## 2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

## 2.1 Project Description

6. The project road is a 50.404-km west to east secondary road, starting from E60 in Dzirula and ending at E60 junction at Chumateleti. Most of the project road is within Imereti Region with a few kilometers within Shida Kartli Region, through a gorge with mountain ranges with on both the northern and southern part. It is envisioned that this road, when improved, will enhance connectivity to a number of towns and villages at the foothills of the mountain ranges and can act as alternate route to parallel segments along E-60.

7. The details of the proposed road project are:

- Rehabilitate and pave the project road from Dzirula to Chumateleti according to Georgian National Standard for Public Motor Roads (SSTGzebi2009), Geometrical and Structural Requirements with 40 km/h design speed. The pavement within Kharagauli town may remain as is since this is still in fair to good pavement condition.
- Replace orrepairof19bridgesand 149culverts.
- 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.

8. For implementation purposes the project was divided into 2 separate sections of about 25 km each. First section (Construction Contractor,,Black Sea Group") covers the eastern ~ 25 km section of the above road from Moliti (km 24+620) to Chumateleti (km 50+244). The details of the proposed road section are:

- Rehabilitation and pavement of the project road from Moliti to Chumateleti according to Georgian National Standard for Public Motor Roads (SST Gzebi 2009), Geometrical and Structural Requirements with a design speed of 40 km/h.
- Replacement of 11 existing bridges, and construction of 2 new bridges
- Construction of 108 pipe culverts and 6 box 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.

9. ACCORD LLC has been selected as the Construction Contractorfor the Second Section (KP 24+620-KP 50+244) agreement has been concluded 04.12.2018. Construction activities are not commenced yet.

10. The road is to be designed according to Georgian geometric design standard, and accordingly, it shall be sufficient to carry the traffic loading efficiently and with the vehicles from the opposite directions can pass safely. The design elements for the cross section of the two-lane road are as follows:

•	Number of lanes:	2
•	Lane width:	3.00 m
•	Carriageway width:	6.00 m
•	Width of shoulder:	1.00 m (of which 0.50 m is paved)
•	Increase of shoulder on embankment	0.50 m
•	Total road width:	9.00 m

11. The preliminary road design was carried out considering following design philosophy:

- The standards to be applied will follow the Georgian geometric design standard for the selected design speed of 40 km/h, with some flexibility in application when the strict application of the standards would result in an excessively costly technical solution.
- In general the design follows the existing alignment wherever possible and considers the existing structures. Where the existing alignment does not correspond to the proposed parameters, certain improvements depending on topography, build-up areas and structures are consider.
- The vertical alignment has been maintained in general, with improvements to the sight distances, where the existing topography allow for improvements. To accommodate new pavement layers, the road elevations have increased accordingly where possible.
- The design will result in a cost effective construction, considering the low traffic volumes on the road and the economic viability of the design.

The map of the project road is given in the **Figure 1** below.





Figure 1: Location Map of the Project Road

12. The project is classified as category B for the environment under ADB's Safeguard Policy Statement (2009). Project implementation periods: 2018-2020.

13. The present Semi-annual Environmental Monitoring Report covers the period from July 2018 to January 2019.

#### 2.2 Project Contracts and Management

14. A Consultancy Contract was awarded to JV of Pyunghwa Engineering Consultants Ltd/ Roads Rehabilitation and Modernization Supervision Direction Ltd for three phases of the project:

- a. Phase1–Design review, to be completed in a period of two months.
- b. Phase2–Construction supervision and contract administration. The construction period is for 2 years.
- c. Phase 3–Defects Notification Period, two years.

15. The TOR for the Consultancy Contract contains the following tasks for the Environmental Specialists:

- Ensure that the provisions of the approved Environmental Management Plan are reflected in the Contractor's contract site-specific environmental management plan (SEMP) prior to its acceptance by the Engineer, the Employer and ADB, and there after ensure that the Contractor complies in every respect with the provisions of the SSEMP;
- b. Develop an environmental auditing protocol for the construction period, regularly supervise the environmental monitoring, and submit periodic reports based on the monitoring data and laboratory analysis reports. These reports will be included as a annex to the Consultant's Monthly Report;
- c. Develop a program for hands-on training of Contractor's staff in implementing the SSEMP. Conduct Post-Construction Environmental Audit and prepare post-construction environmental audit report with filled environmental audit checklist.

16. The construction contract has been awarded to JV of Pyunghwa Engineering Consultants Ltd/ Roads Rehabilitation and Modernization Supervision Direction Ltd –Joint Venture.

17. The names and contact details of environmental staff involved in the environmental management are presented in the **Table 1** below:

Organization	Position	Name	Nationality	Tenure
Construction	Environmental	KetevanNadirashvili	Georgian	16months
Contractor BSG	Specialist	577 992959		
		Ketevan_Nadirashvili@BCGcom.ge		
Supervision	Environmental	ShalvaBosikashvili	Georgian	16months
Consultant	Specialist	sbosikashvili@yahoo.com		
Pyunghwa				
Engineering		595 116041 Cell Phone		
Consultants Ltd/				
Roads				
Rehabilitation				
and				
Modernization				
Supervision				
Direction Ltd				
ADB/RM	Head Office,	Duncan Lang		

**Table 1:** Description of staff involved in environmental management

	Environmental Specialist, Portfolio, Results, Safeguards and Gender Unit (PSG), CWRD.	dlang@adb.org		
	ADB/RETA International- Regional Environmental Safeguards Consultant	Keti Dgebuadze Tel: +995 322 250619 Mob: +995 577 232937 E-mail: <u>ketdgeb@yahoo.com</u> <u>kdgebuadze.consultant@adb.org</u>	Georgian	
	Associate Safeguards Officer Georgia Resident Mission Asian Development Bank	Nino Nadashvili +995 595 070442 nnadashvili@adb.org	Georgian	
Roads Department/PIU	Environmental Safeguard Consultant under ADB & EIB financed Projects	Luiza Bubashvili Cell:+995595219141 Web: www.georoad.ge likabubashvili@yahoo.com	Georgian	

18. Construction Contractor for first section is "Black Sea Group"LTD.

## 2.3 Project Activities During the Current Reporting Period

19. Contract signed on 01.08.2018, construction activities have been commenced on 18.09.2018.

20. Preparatory works such as basic survey works and setting out works, establishing camp sites in Kharagauli and Sagandzile,cutting trees, retaining walls and precast of concrete blocks are in progress.

21. Site inspections for preparatory works, retaining walls and precast concrete blocks have been carried out. Progress of the works is given in the Table 2 below.

No	Description	Weight	CumulativeProgress (%)			
NO.	Description	Rate (%)	Plan	Actual	Comparison	
1	General	1.52	0.04	0.01	25	
2	Settingout &SiteClearance	7.17	0.25	0.25	100	

#### Table 2: PROGRESSOFTHEWORK

3	Earthworks	4.52	0	0	1.1
4	CulvertsandDrainageWorks	20.75	0	0	1.2
5	Pavements	18.98	0	0	1.3
6	RetainingStructure	35.29	2.60	0.21	8
7	JunctionsandPrivateEntrances	0.85	0	0	1.4
8	RoadFurniture&RoadMarkings	5.48	0	0	1.5
9	BridgeConstruction	2.59	0	0	1.6
10	RehabilitationofExistingBridges	0.81	0	0	1.7
11	Miscellaneous	2.03	0	0	1.8
	Total	100	2.88	0.85	29.5

Some photos from construction site are provided below:



## 2.4 Description of Any Changes to Project Design

22. Proposed changes in the project are outlined below, but **not discussed yet** by RD, Consultant Engineer and Construction Contractor and agreed yet.

- 1. Relocation of facilities such as gas, water, electric and internet line cables
- 2. Demolition of Existing Bridge at km 0+200
- 3. Modification of Typical Drawing for Retaining Walls
- 4. Countermeasure for Rock Sliding area from km 1+100 to km 1+250
- 5. Additional Retaining Wall at several locations

#### 2.5 Description of Any Changes to Agreed Construction methods

23. During the reporting time period, the Contractor did not make any changes in the construction method.

# 3. ENVIRONMENTAL SAFEGUARD ACTIVITIES

## 3.1 General Description of Environmental Safeguard Activities

24. The Supervision Consultant will supervise and monitor the project construction process. The SC includes Environment Specialist (national) as part of their team to oversee the overall implementation of environmental management plan (EMP)/SEMP, environmental monitoring, and compliance to the environmental requirements of ADB. SC Environmental Specialist will prepare quarterly environmental monitoring reports required by ADB, monitor the environmental compliance of the Construction Contractor.

25. Contractor submitted all environmental reports and data according to the project EIA commitments. Prospective borrow pits have been selected, license obtaining process ongoing. Camp in Kharagauli has been arranged, relevant agreement with owner was concluded. Environmental documentation for the crusher and batching plant prepared. Relevant procedures and documents for the tree felling have been completed. Baseline parametric measurements of air, noise and water quality carried out 02.09.2018 (see **Annex 1**), before construction activities commencement. Technical regulations on water withdrawal agreed with the Ministry of Environment Protection and Agriculture. SEMP has been submitted in October 2018, reviewed by consultant engineer and by RETA International-Regional Environmental Consultant – Keti Dgebuadze, after revision it was approved by PIU in February 2019.

## Site Audits

26. Two site HSE inspections have been undertaken During reporting period two HSE inspections were undertaken on 24.10.2018 and 24.12.2018 by Contractors Environmental Manager and Construction Consultant Staff(relevant HSE Monitoring Reports prepared and filed, see **Annex 3**)... The summary of site inspections is provided in **Table 3** below.

Date of visit	Name of Company	Auditors name,	Purpose of audit	Summary of any significant findings	Cross reference to Audit report
24.10.2018	BSG	ShalvaBosikashvili	Compliance with HES requirements, SEMP	<ol> <li>Poor housekeeping at camp site</li> <li>Gas cylinder unacceptable condition and usage and storing rule violation</li> </ol>	Relevant verbal instructions were given to contractor
24.12.2018	BSG	ShalvaBosikashvili	Compliance with HES requirements, SEMP	<ol> <li>Poor housekeeping at construction sites</li> <li>Generator without drip tray</li> </ol>	Relevant verbal instructions were given to contractor

## Table 3: Summary of site audits

#### 3.3 Issues Tracking (Based on Non-Conformance Notices)

27. During HSE site inspections only insignificant non-conformances were detected, mostly housekeeping issues. Non-Conformance Notices have not been issued; appropriate verbal instructions were given to improve general housekeeping at the camp and construction sites. Photos of site visits are provided in Annex 1.

Summary Table	
Total Number of Issues for Project	2
Number of Open Issues	1
Number of Closed Issues	1
Percentage Closed	50
Issues Opened This Reporting Period	2
Issues Closed This Reporting Period	1

Table 4. Summary	v of Issues	Tracking	Activity	/ for	Current	Period
	, 01 100000	i i a o i i i g	,		ounone	

Figure 1. Summary of Issues by Non-Conformance



#### 3.4 Trends

24. Contractor's HSE performance generally satisfactory, relevant trainings are provided to the site staff, required documents and reports submitted, waste segregation and disposal procedure acceptable. Grievance redress system established, the grievance boxes are located at the entrance of the Company Office in Kharagauli and entrance of the Camps (Kharagauli and Sagandzile).

#### 3.5 Unanticipated Environmental Impacts or Risks

25. So far unanticipated environmental impacts/risks are not identified.

# 4. RESULTS OF ENVIRONMENTAL MONITORING

#### 4.1 Overview of Monitoring Conducted during Current Period

26. Environmental monitoring started immediately after the commencement of civil works.

27.According to the project EIA, periodic parametric mesurements of air, noise and water quality will be carried out by the construction contractor according appropriate schedule. Locations of measurements will be defined by the method statement for particular area.

28. During the reporting period the construction contractor conducted monitoring of the following sites:

- Camp and construction sites,
- Installation of batching plant and crusher (relevant documentation prepared and submitted)
- Tree felling

29. Baseline measurements of air, noise and water quality have been carried out in September 2018 by Ltd. "Greentecs". Results of measurements are presented in Annex 2: Pre-Construction Baseline Measurements. Water samples have been taken from: rv. Dzirula; rv. Jirjaura (rv. Chkhirimela tributary), rv. Leghvanura (rv.Chkhirimela tributary), rv. Chkhirimela). Air and noise measurements have been carried out near the Sgandzile and Dzirula schools.

#### 4.2 Trend

30. Contractor's HSE performance generally satisfactory, relevant trainings are provided to the site staff, required documents and reports submitted, waste segregation and disposal procedure established. Noise and vibration levels are permanently controlled at the sensitive locations. So, currently trend is positive.

#### 4.3 Summary of Monitoring Outcomes

31. Baseline measurements have been carried out on 02.09.2018 (please see Annex 2).Next parametric measurements will be performed on quarterly basis according to ADB guidelinesin February 2019.

#### 4.4 Material Resources Utilisation

32.Thecut down trees were transferred to the former owners of the trees according to the resettlement action plan.

#### 4.4.1 Current Period

33. Permits for water use and water discharge obtained for the camp sites.

#### 4.5 Waste Management

34. Waste segregation and disposal procedure established. Appropriate waste containers for

hazardous and domestic waste are placed and labeled (see Annex 1). The warehouse of hazardous waste is arranged on Kharagauli camp site. Training of the personal was conducted. The agreement was signed with the local cleaning service and domestic waste is removed twice a week.

## 4.5.1 Current Period

35. Insignificant amount of hazardous waste(50kg) kept in warehouse at Kharagauli camp (special room with concrete floor and locked metal gate), based on very small volume of the hazardous waste, contract for the hazardous waste disposal with relevant company is not concluded yet. Domestic waste from the sites removed and disposed by the licensed contractor (Kharagauli Cleaning Service).During the reporting period spoil removal/disposal works were not carried out. Spoil dumping area agreed with local municipality (same area used by Chinese company constructing the railway).

#### 4.6 Health and Safety

## 4.6.1 Community Health and Safety

36.BSG assigned H&S officer (Nick Jashiashvili) to oversee H&S performance at the construction sites and camps. During this reporting period no accidents or near misses have been identified and recorded in the H&S log book.

## 4.6.2 Worker Safety and Health

37. During this reporting period no accidents or near misses have been recorded. Log book for HSE accidents prepared and kept at the camp site.

#### 4.6.3 Training

38. HSE induction training was provided to the contractor's relevant staff. Daily tool boxes were carried out. Relevant training given to the personnel involved in the hazardous waste handling. Specific training regarding flora and fauna protection have been provided to the site staff. (Please see Annex 4)

# **5. FUNCTIONING OF THE SEMP**

### 5.1 SEMP Review

39. SEMP has been submitted in October 2018, reviewed by Consultant Engineer, RD, ADB and with appropriate comments sent back, for the revision.During preparation of SEMP existing EMP was used as a baseline document by CC.

40. At this stage, presented mitigation measures are effective and there is no need for corrections or alternatives.So, no changes needed in the mitigation measures of the Environmental Management Plan at the moment.

## 6. GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

## 6.1 Good Practice

41. During the reporting period the Contractor timely provided the following:

- Prepare and submit Scoping Reports for the Crusher and Batching Plant. Developed the Specific Environmental Management Plan and submitted it to the engineer;
- Timely deliver Monitoring Reports, and other documents required by EIA commitments
- Timely deliver the Health Safety Management Plan to the Engineer;
- Conclud the Agreement on removing of domestic waste;
- Provide Bio Toilets for the Construction Sites
- Provide safety equipment for the working personnel;
- Obtained technical regulations on water withdrawal permit from the Ministry of Environment Protection and Agriculture.
- Establish grievance redress system

# 6.2 Opportunities for Improvement

42. Provide relevant site staff with housekeeping and pollution prevention trainings.

## 7. SUMMARY AND RECOMMENDATIONS

## 7.1 Summary

43. It should be highlighted that during the reporting time period the HSE performance of the Contractor was satisfactory. The actions of the Contractor didn't have any negative effect on biodiversity and no poaching actions were evident. No safety accident or near misses were identified. No grievances received from the local habitants.

## 7.2 Recommendations

44. The following activities are planned for the next January -June 2019 reporting period:

- Construction Contractor should complete (incorporate ADB, RD and Consultant Engineers comments) the site-specific environmental management plan (SEMP) Q1 2019;
- Quarterly parametric measurements of the air/water quality and noise/vibration should be scheduled and performed in time;
- Undertake trainings for housekeeping improvement and pollution prevention.

# ANNEXES:

## Annex 1: Site Photos







#### ANNEXES

# Annex 2 – Baseline Measurements of noise, air and water quality (September 2018)

მბერი , 2018 წელი რე სამუშაოს სულ ასანაზღაურებელი ღირებულება
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საქართველო შპს "გრინტექსი"



#### **GEORGIA** "GREENTECS" LTD

საქართველო, 0131, თბილისი, გ. ბრწყინვალეს ქ. 21, ბ.12, ტელ: 595-30-01-24, E-mail: <u>waterdept\_imt@yahoo.com</u> 12, Ne21, G. Brtskinvale str, Tbilisi, 0131, Georgia, Tel (+995) 95-30-01-24, E-mail: <u>waterdept\_imt@yahoo.com</u>

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#### რეაბილიტაცია) პროექტი

მდინარე პირულა, ჩხერიმელა და მის შემონაკადებზე წყლის ხარისხის

#### ფონური გაზომვის შედეგები

Nº	წყლის ობიექტის	კოორდინა	გაზომილი პარამეტრების მაცვენებლები			
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2	<u>ჯირჯაურა</u> <u>მდ. ჩხერიმელას</u> შემონაკადი	<u>0353463</u> <u>4651085</u>	<u>8.4</u>	23.1	<u>&lt;0.01</u>	2600
3	ლეღვანურა მდ. ჩხერიმელას შემონავადი	0356982 4648648	<u>8.0</u>	<u>28.4</u>	<u>&lt;0.01</u>	<u>1800</u>
4	<u>მდ. ჩხერიმელა</u> შუა მონაკვეთი	0350397 4654680	7.8	<u>56.9</u>	0.03	<u>4700</u>
<u>5</u>	<u>მდ. ჩხერიმელა</u> <u>ზედა წელი</u>	<u>0357464</u> <u>4648915</u>	8.1 A	<u>30.6</u>	<u>0.01</u>	<u>1900</u>

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საქართველო, 0131, თბილისი, გ. ბრწყინვალეს ქ. 21, ბ.12, ტელ: 595-30-01-24, E-mail: <u>waterdept\_imt@yahoo.com</u> *12, J*&21, G. Brtskinvale str, Tbilisi, 0131, Georgia, Tel (+995 ) 95-30-01-24, E-mail: <u>waterdept\_imt@yahoo.com</u>

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რეაბილიტაცია) პროექტი

ჰაერის – PM 2.5 + PM10 და ხმაურის ბგერის დონის ფონური გაზომვის შედეგები.

Nº	<u>გაზომვის წერტილის</u> <u>აღწერა</u>	<u>კოორდინატები</u>	<u>გაზომვის შედეგები</u>		
			<u>მტვერი მკგ/მ³</u>		ხმაურის
			<u>Pm2.5</u>	<u>Pm10</u>	- <u>ბგერის</u> <u>დონე</u> <u>დბ Amax</u>
1	სოფელ მირულას	0353598	33	<u>39</u>	<u>48.9</u>
-	სკოლასთან	4651024	<u>67'</u>	<u>98'</u>	<u>53.2</u>
2	სოფელ საღანძილეს	0347906	<u>29</u>	34	51.2
=	სკოლასთან	4660165	<u>168'</u>	<u>218'</u>	<u>55.4</u>

2018 წ. 02 სექტემბერი 1430 - 1620

<u>\*- გაზომვეზი ჩატარებულია მსუბუქი ავტომანქანების მოძრაობის დროს.</u>

დირექტორი

ილია მცხვეთამე



## **Annex 3: HSE INSPECTION REPORT**

# HSE INSPECTION REPORT

Date & Time:	24.10.2018	Location:	Kharagauli
Subject of Inspe	ction: HSE practice/Performance	and culture of	on site
Supervisor: Ju 	n Gu Kim	Contact De	tails:

People Interviewed:

No	Name	Position	Comment
1	Geno Akopashvili	Project Manager	
2	Nick Jashiashvili	Field HSE Manager	



contractor's (BSG) representative, area belongs to area owner company.





## General Housekeeping

• Generally acceptable, area in front the office clean.

#### H&S

- Information board and restriction signs are placed at the entrance.
- Entrance is controlled by security guard; enter for visitors are allowed after registration..

#### Sanitation

•

• Toilet is clean.

# Personal Protective Equipment (PPE)

PPE in place. Some workers don't wear PPE.

## Vehicles & Equipment Safety

• Vehicles and heavy equipment in acceptable condition

#### **Accident Reporting**

• No accident was reported.

#### **Medical Cover**

• No medical cover on site.

## Fire Safety

- Fire action board is placed on site.
- Fire extinguishers are placed on the action board

#### **Emergency Response**

• Emergency Response plan is elaborated and Master Point is defined and announced

### Training (including HIV/AIDS Awareness Program)

- All site personnel are trained; training record and hard copies are kept at the office;
- Spill/Contamination prevention and Vehicle/Heavy equipment inspection trainings should be carried out for the relevant contractor's staff.
- Training should be provided to the staff regarding Housekeeping at the construction site and include this issue in daily Toolbox talks.

#### Environment

- Only nonhazardous waste wheelie bins are provided and placed where necessary.
- Drip trays should be provided and used at the vehicle/ heavy equipment maintenance area/ Refuelling points and generator
- No Spill Response Equipment on site; Spill kits should be placed at the vehicle and heavy equipment maintenance area, fuel and lubricant storage and refueling points.
- Waste storage and disposal should be improved.
- All vehicles and heavy equipment should be inspected on daily basis (use relevant checklists), in case of leakage finding, prohibit usage of the damaged Vehicles/Heavy equipment.
- General housekeeping is acceptable
- Power generator should be placed in the sufficient drip tray or concrete fuel/oil containment band should be arranged around.

#### Social:

 No social issues were raised; all the activities are being preliminary agreed with local government representatives Hard copies kept in office.

#### Cultural heritage:

• N/A

#### Other (specify):

Inspector (s):

Shalva Bosikashvili Environmental Specialist

Name

Position

Nick Jashiashvili

Position

HSE Manager

Name

### Annex 4 \_ HSE training

#### **Training Attendance Form**

~ 10

This form is completed by the person responsible for training and must be submitted to the Department of Human Resources at the end of training

Name of training : ნარჩენების მართვა

#### Date of training: 11.11.2018

## Trainer's full Name: ქეთევან ნადირაშვილი

N	Name/Surname	Duty/Department/Position	Signature	Contact Details
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20	and white	and smunn	enth	577-998-668
			2	43

Trainer:

1.01m

Place of training: ხარაგაული, კომპანიის ოფისი

General Evaluation:პროექტში დასაქმებულებს მიეწოდათ ინფორმაცია სამშენებლო სამუშოებისას მოსალოდნელი წარჩენების და მათი მართვის შესახებ.