

# Semi-annual Environmental Monitoring Report

---

Project Number GEO 49257

Loan No GEO 3715

Bi- Annual Report

January - June 2019

August 2019

## **Georgia: East - West Highway (Khevi-Ubisa Section) Improvement Project**

**Financed by the Asian Development Bank**

Prepared by: Kashif Bashir Senior Environmental Specialist, Mr. Tengiz Lagidze  
Environmental Specialist UBM

Endorsed by: Levan Kupatashvili, Deputy Chairman of Roads Department of the Ministry  
of Regional Development and Infrastructure of Georgia

## Abbreviations

ADB	Asian Development Bank
BOD	Bio-chemical Oxygen Demand
CAREC	Central Asia Regional Economic Corridor
CC	Construction Contractor
COD	Chemical Oxygen Demand
CSCS	Consultancy Services for Construction Supervision
CSC	Construction Supervision Consultant
CSEMP	Contractor's Contract Specific Environmental Management Plan
dB (A)	Decibel
DO	Dissolved Oxygen
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMP	Environmental Management Plan
EMR	Environmental Monitoring Report
ESR	Environmental Sensitive Receiver
GRM	Grievance Redress Mechanism
HS	Health & Safety
HSE	Health Safety and Environment
IEE	Initial Environmental Examination
IFC	International Finance Corporation
MAC	Maximum Admissible Concentration
MoEPA	Ministry of Environmental Protection and Agriculture
MoESD	Ministry of Economy and Sustainable Development
NCN	Non-Conformance Notice
NCR	Non-Conformance Report

NFA	National Forest Agency
NOC	No Objection Certificate
OSHA	Occupational Safety and Health Administration
PPE	Personnel Protective Equipment'
PAPs	Project Affected Persons
PIU	Project Implementation Unit
QC	Quality Control
RD	Road Department
RoW	Right of Way
SC	Supervision Consultant
SEMP	Site Specific Environmental Management Plan
SFF	State Forest Fund
SPS	Safeguard Policy Statement
TSS	Total Suspended Solids

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

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

## TABLE OF CONTENTS

<b>1. INTRODUCTION</b> .....	<b>5</b>
1.1 Preamble .....	5
1.2 Headline Information .....	5
<b>2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES</b> .....	<b>6</b>
2.1 Project Description.....	6
2.2 Project Contracts and Management.....	7
2.3 Project Activities during Current Reporting Period .....	10
2.4 Information on personnel working on construction site .....	16
2.5 Description of Any Changes to Project Design .....	17
2.6 Description of Any Changes to Agreed Construction Methods .....	17
<b>3. ENVIRONMENT SAFEGUARD ACTIVITIES</b> .....	<b>18</b>
3.1 General Description of Environment Safeguards Activities .....	18
3.2 Site Audits.....	18
3.3 Issues Tracking (Based on Non-Conformance Reports) .....	18
3.4 Trends .....	19
3.5 Unanticipated Environment Impacts or Risk .....	20
<b>4. RESULTS OF ENVIRONMENTAL MONITORING</b> .....	<b>21</b>
4.1 Overview of the Monitoring Conducted During Current Period .....	21
4.2 Summary of Monitoring Outcomes .....	22
4.3 Material Resource Utilization .....	22
4.4 Waste Management .....	23
4.4.1 Current Period .....	24
4.5 Health and Safety.....	24
4.5.1 Community Health & safety .....	25
4.5.2 Occupational Health & Safety .....	25
4.6 Trainings .....	26
4.7 Grievance redress mechanism and complaints .....	26
<b>5. FUNCTIONING OF SSEMP</b> .....	<b>27</b>
5.1 SSEMP Review .....	27
<b>6. GOOD PRACTICES</b> .....	<b>33</b>
6.1 Good Practices .....	33
<b>7. SUMMARY AND RECOMMENDATION</b> .....	<b>33</b>
7.1 Summary .....	33
7.2 Recommendations.....	34
<b>ANNEXES</b> .....	<b>35</b>
Annex 1: Project Pictures.....	35
Annex 2: Surface water and ground water monitoring results .....	42
Annex 3: Non-Conformance reports and photos.....	47
Annex 4: Grievance Redress Mechanism .....	61
Annex 5: Attendance Lists for Environment & HS Trainings.....	63

## 1. INTRODUCTION

### 1.1 Preamble

1. This report presents the Bi- annual Environmental Monitoring review of East - West Highway (Khevi-Ubisa section) Improvement Project for the period of January to June 2019.
2. This report is the second Semi-Annual EMR for the E-60 highway (Khevi-Ubisa section) improvement project.

### 1.2 Headline Information

3. The Project involves the construction of a new road section of the E-60 highway located in Imereti Region of Central Georgia. Section F2 forms the Khevi - Boriti portion of the Khevi-Ubisa-Shorapani-Argveta section of the E-60 highway. The project involves the construction of 20 tunnels, 35 bridges, 2 interchanges, 6 underpasses, 4 animal corridors and 19 culverts. The length of the Project road is given below:

1) Right lane (TA - Tbilisi-Argveta direction)-12.197km;

2) Left lane (AT - Argveta -Tbilisi direction)-12.193k

4. This F2 section, new alignment runs through the scattered population of various villages and the most impacted by the new alignment are Khunevi and Vertkvichala settlements. The alignment runs through mountainous area characterized by heavy impediments during winter time, basically in the form of snow and frost and geologically complex area with mixed forest and riverine ecosystems.
5. The Project outline (km 0+000 – 12+197) from Khevi to near Boriti Police station:

Classification of road:	International highway
Design speed:	100 km/ hr.
Speed Limit:	80 km/ hr.
Road length:	12.197 km
Road width:	27 m
Numbers of lanes:	4 lanes

6. There is no official commencement of the construction of the Project during the reporting period from January to June 2019; however, the contractor was allowed to do some Project preparatory work in May 2019 after the visit of RD representative on 16.05.2019.

## 2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

### 2.1 Project Description

7. E-60 highway connecting the Black Sea coast to the capital of Georgia passes through a mountainous area 600-850 meters above the sea level. The Khevi-Argveta alignment is located on the mountainous area, excluding the last 10-12 km section, which is located on the flat terrain. The proposed highway is located on the complex geological and geographical area and crosses numerous small mountain rivers and ravines. Mixed forests, typical to this climate zone, cover the slopes of the mountains.
8. The existing 2-lane road passes through difficult mountainous terrain paralleling first the River Rikotula and then, the River Dzirula and consists of multiple bridges and several tunnels.
9. The government of Georgia has requested ADB to finance for the construction of the Khevi-Ubisa section of E-60 highway. The project is classified as Category A Project – Environment safe guard under ADB SPS 2009.
10. The Project involves the construction of a new road section of the E-60 highway located in Imereti Region of Central Georgia (Figure 1). Proposed Section F2 forms the Khevi - Boriti portion of the Khevi-Ubisa-Shorapani-Argveta section of the E-60. The length of the Project road is given below:
  - 1) Right lane (TA - Tbilisi-Argveta direction)-12.197km;
  - 2) Left lane (AT - Argveta -Tbilisi direction)-12.193km.
11. Total twenty tunnels 20 with length 9110.93 meters are proposed including:
  - 9 tunnels on carriageway TA (two existing tunnels to rehabilitate) with total length of 4,340 m;
  - 11 tunnels on carriageway AT with total length of 5020 m.
12. The project road also includes (35) bridges, of which 18 bridges on TA carriageway with total length of 4210 m and 17 bridges on AT carriageway with total length of 4186 m.
13. Technical features of the alignment considered during detail design include:
  - Design speed – 100 km/h (speed limit 80 km/h);
  - Number of traffic lanes – 4;
  - W width of traffic lane – 3.75 m;
  - Width of each carriageway – 7.5 m;
  - Width of paved shoulder (emergency lane) – 2.5 m;
  - Width of verge – 1.0 m;
  - Width of central reserve – 5.0 m;
  - Width of paved shoulder at the central reserve – 1.0 m;
  - Total width of each paved platform – 11.0 m;
  - Width of road bed – 27.0 m;
  - Carriageway cross-fall on straight sections – 2.5%;
  - Minimum radius of horizontal curve – 400 m;
  - Maximum longitudinal gradient– 4%;
  - Minimum convex curve – 15 000 m;
  - Minimum concaved curve – 15 000 m;
  - Number of Interchanges- 2.

14. In addition to that project includes 6 underpasses for rural roads, 4 animal corridors, and 19 culvers.

**Figure 1: Location of Project Area**



## 2.2 Project Contracts and Management

15. Information related to the project execution is given in Table 1:

**Table 1: Project information**

Employer	Road Department of Georgia, Ministry of Regional Development and Infrastructure of Georgia
Funding Source	Asian Development Bank (ADB)
The Engineer	UBM
Contractor	Hunan Road & Bridge Construction Group Co (HRBCC), Ltd
Contract Number	KURP/CW/OCB-01
Contract date	November 20, 2018
Commencement Date of Works	Not announced during the reporting Period of January – June 2019
Contract Period	1080 days
Original Completion date	Not announced during reporting period
Expired time	0 month
Remaining time	3 years

Defects Notification Period	2 years
Contract Price (GEL)	GEL 732,296,478.02(BIDPRICEINCLUDEDVAT18%)

16. The TOR for the CSCS 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 specific environmental management plan (CSEMP) prior to its acceptance by the Engineer, the Employer and ADB, and thereafter ensure that the Contractor complies in every respect with the provisions of the CSEMP;
- 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 an annex to the Consultant's Monthly Report
- Develop a program for hands-on training of Contractor's staff in implementing the CSEMP.

17. Obligation of the contractor, to safeguard, mitigate adverse impacts and rehabilitate the environment is addressed through environmental provisions in the FIDIC conditions of contract for construction, MDB harmonized addition- June 2010 and special clauses included in the contract related to environment, especially, section 166 and appendix X of technical specifications. FIDIC clause 4.18 (protection of environment), 4.8 (safety procedures), 6.4 (labor laws), 16.3 (cessation of work/ remedial work), 2.3 b (employer's personnel), 4.21 (progress report) are important in this regard.

18. The Contract for CSCS was awarded to UBM in May 2019 for three phases of the project:

Phase 1: Design review, to be completed in a period of three months and submitted to RD

Phase 2: Construction supervision and contract administration. The construction period is for 1080 days

Phase 3: Defects Notification Period, two years

19. Contact details of ADB, CC, SC and RD representatives are given in Table 2 below:

**Table 2: Main Environmental staff of ADB, CC, SC and RD**

Organization	Position	Name	Nationality
ADB	Head Office, Environmental Specialist, Portfolio, Results, Safeguards and Gender Unit (PSG), CWRD.	Duncan Lang <a href="mailto:dlang@adb.org">dlang@adb.org</a>	
	ADB/RETA International-Regional Environmental Safeguards Consultant	Keti Dgebudze Tel: +995 322 250619 Mob: +995 577 232937	Georgian



		E-mail: <a href="mailto:ketdgeb@yahoo.com">ketdgeb@yahoo.com</a> <a href="mailto:kdgebuadze.consultant@adb.org">kdgebuadze.consultant@adb.org</a>	
	Associate Safeguards Officer Georgia Resident Mission	Nino Nadashvili +995 595 070442 <a href="mailto:nnadashvili@adb.org">nnadashvili@adb.org</a>	Georgian
Client/ Borrower	Environmental Specialist of RD	Luiza Bubashvili <a href="mailto:likabubashvili@yahoo.com">likabubashvili@yahoo.com</a> 595 219 141	Georgian
	Head of Environmental Unit of RD	Gia Sopadze <a href="mailto:sopgia@gmail.com">sopgia@gmail.com</a> 599 939 209	Georgian
CSC	International Environmental Specialist	Kashif Bashir Cell: +995 558 151173 Email: <a href="mailto:bashir.kashif@gmail.com">bashir.kashif@gmail.com</a>	Canadian
	Environmental Expert	Tengiz Lagidze Email: <a href="mailto:ten_iver@yahoo.com">ten_iver@yahoo.com</a>	Georgian
Contractor	Project Manager	Dai_Xiangyang 599463199 <a href="mailto:hnr.ge@gmail.com">hnr.ge@gmail.com</a>	Chinese
	Environmental Specialist	Levan Inashvili 591199991 <a href="mailto:inashvili@gmail.com">inashvili@gmail.com</a>	Georgian

20. Under the Contract, the Contractor shall comply with all applicable national and local environmental laws and regulations as well as applicable respective standards under the Contract. The Contractor shall:

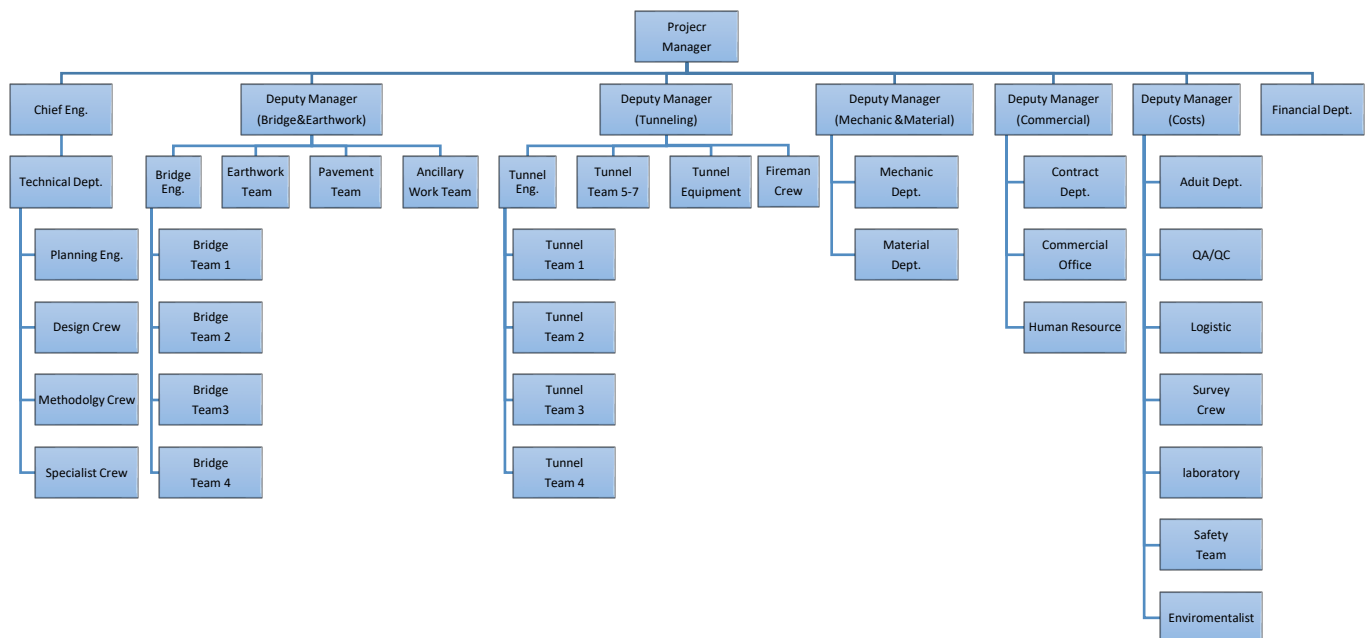
- Establish an operational system for managing environmental impacts,
- Develop the SEMP as well as topic specific EMPs by identifying environmental risks arising from the Works, the mitigation measures to be applied, and monitoring to be carried out
- Implement the required mitigation measures and monitoring

- Take any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the EMP, and
- Submit monthly compliance reports to the engineer.

21. The Contractor HNRB is responsible for implementation of EMP throughout the project during construction phase. The Supervision Consultant UBM (Engineer) is responsible to i) monitor the implementation of EMP by the Contractor at all its active construction sites and project related facilities; ii) conduct post-construction environmental audit and prepare post-construction environmental monitoring report.

22. Responsibility of daily management for environmental monitoring and implementation of the SEMP is given to the Environmental Protection Manager Mr. Levan Inashvili. He has direct authority from the Project Manager to give instruction to all site staff regarding environmental issues. The project organization chart for key management staff of HNRB is provided below in Figure 2:

**Figure 2: Contractor Project Management Staff**



### 2.3 Project Activities during Current Reporting Period

23. Currently project preparatory activities are being carried out by the contractor. The following construction activities are being undertaken during this monitoring and reporting period at different sections of the Project

- Subgrade excavation for ATK16+07-K16+85 section;
- The pile foundation construction platform of Pile foundation of BRI-2104-AT
- The foundation excavation of Abutment No.1 of BRI-2103-AT
- The pile foundation construction platform of Pile foundation of BRI-2102-AT
- The foundation excavation of Abutment No.1 of BRI-2105-AT
- The temporary bridge and entrance road of BRI-2109
- The entrance road of BRI-2113 was completed construction
- Slope protection of TUN2002, TUN2004 and TUN2005 portal and slope excavation of TUN2009 portal;
- Foundation excavation for AB1 abutment of AT BRI2103;
- Temporary Main Camp Construction (K11+600);
- Construction of the Warehouse (K2+043.5);
- Cutting of trees (K1+870, K2+043.5);
- Construction of #1 Mix plant (K0+750);
- Construction of #1 Camp (K1+400);
- Construction of temporary road (K9+700, K2+700, K10+315.5, K5+850);
- Construction of re-bar preparation area (K1+400-K1+500);
- Excavation of Earthwork (K0+980-K1+000);
- Boreholes of Geotechnical Survey (AIB-2105-01);
- Construction of #2 Camp (K4+100);
- Construction of Explosive Depot (K9+650);
- Excavation of Abutment of Bridge 2105 (K1+504 AT);

24. Progress of works carried out during the reporting period is summarized in Table 3 below:

**Table 3: Construction progress during reporting period**

WORK DESCRIPTION	DIMENSION	DESIGN	ACTUAL	%	NOTE
<b>Bill No.2 Setting Out and Site Clearance</b>					
2.1 Basic topography and detailed setting out					
For main road	km	24.391	24.391	100	
For secondary roads	km	3.06	0	0	
Interchanges	km	3.53	0	0	
Demolitions	mc	55561	16668.3	30.0	
Cutting trees of more than 0.1 m diameter	Lump Sum	1	0.35	35.0	
<b>Bill No.3 Earthworks</b>					
Topsoil removal	m <sup>3</sup>	38206.0	1910.3	5.0	
Excavation of soil mechanically	m <sup>3</sup>	420950.0	17,396.03	12.65	
Excavation of soil by means of blasting	m <sup>3</sup>	1305980.0	13,408.38	1.03	

Construction of embankment	m <sup>3</sup>	564550.0	0	0	
Construction of dividing strip	m <sup>3</sup>	29660.0	0	0	
Slope protection	m <sup>3</sup>	18720	0	0	
<b>Bill No.4 Culverts and drainage</b>					
Box culvert – 2.0m X 2.5m	Linear meter	805	0	0	Constr uction proces s
Box culvert – 4.0m X 2.5m	Linear meter	83	0	0	
Box culvert on local roads	m <sup>3</sup>	681.63	0	0	
<b>Bill No.5 Bridges 35 sets</b>					
BRI 2101 TA	set	1	0	0	
BRI 2101 AT	set	1	0	0	
BRI 2102 TA	set	1	0	0	
BRI 2102 AT	set	1	0.03	3	
BRI 2103 TA	set	1	0	0	
BRI 2103 AT	set	1	0.03	3	
BRI 2104 TA	set	1	0	0	
BRI 2104 AT	set	1	0.01	1	
BRI 2105 TA	set	1	0	0	
BRI 2105 AT	set	1	0.05	5	
BRI 2106 TA	set	1	0	0	
BRI 2106 AT	set	1	0	0	
BRI 2107 TA	set	1	0	0	
BRI 2107 AT	set	1	0	0	
BRI 2108 AT	set	1	0	0	
BRI 2109 TA	set	1	0	0	
BRI 2109 AT	set	1	0.01	1	
BRI 2110 TA	set	1	0	0	
BRI 2110 AT	set	1	0	0	
BRI 2111 TA	set	1	0	0	
BRI 2111 AT	set	1	0	0	

BRI 2112 TA	set	1	0	0	
BRI 2112 AT	set	1	0	0	
BRI 2113 TA	set	1	0	0	
BRI 2113 AT	set	1	0	0	
BRI 2114 TA	set	1	0	0	
BRI 2114 AT	set	1	0	0	
BRI 2115 TA	set	1	0	0	
BRI 2115 AT	set	1	0	0	
BRI 2116 TA	set	1	0	0	
BRI 2116 AT	set	1	0	0	
BRI 2117 TA	set	1	0	0	
BRI 2117 AT	set	1	0	0	
BRI 2118 TA	set	1	0	0	
BRI 2118 AT	set	1	0	0	
BRI 2121 L1	set	1	0	0	
BRI 2122 L2	set	1	0	0	
BRI 2123 LR1	set	1	0	0	
<b>Bill No.6 Tunnels 20 sets</b>					
TUN 2001 TA	set	1	0	0	
TUN 2001 AT	set	1	0	0	
TUN 2002 AT	set	1	0	0	
TUN 2003 TA	set	1	0	0	
TUN 2003 AT	set	1	0	0	
TUN 2004 AT	set	1	0	0	
TUN 2005 TA	set	1	0	0	
TUN 2005 AT	set	1	0	0	
TUN 2006 TA	set	1	0	0	
TUN 2006 AT	set	1	0	0	
TUN 2007 TA	set	1	0	0	

TUN 2007 AT	set	1	0	0	
TUN 2008 TA	set	1	0	0	
TUN 2008 AT	set	1	0	0	
TUN 2009 TA	set	1	0	0	
TUN 2009 AT	set	1	0	0	
TUN 2010 TA	set	1	0	0	
TUN 2010 AT	set	1	0	0	
TUN 2011 TA	set	1	0	0	
TUN 2011 AT	set	1	0	0	
<b>Bill No.7 Equipment for Tunnels 20 sets</b>					
TUN 2001 TA	set	1	0	0	
TUN 2001 AT	set	1	0	0	
TUN 2002 AT	set	1	0	0	
TUN 2003 TA	set	1	0	0	
TUN 2003 AT	set	1	0	0	
TUN 2004 AT	set	1	0	0	
TUN 2005 TA	set	1	0	0	
TUN 2005 AT	set	1	0	0	
TUN 2006 TA	set	1	0	0	
TUN 2006 AT	set	1	0	0	
TUN 2007 TA	set	1	0	0	
TUN 2007 AT	set	1	0	0	
TUN 2008 TA	set	1	0	0	
TUN 2008 AT	set	1	0	0	
TUN 2009 TA	set	1	0	0	
TUN 2009 AT	set	1	0	0	
TUN 2010 TA	set	1	0	0	
TUN 2010 AT	set	1	0	0	
TUN 2011 TA	set	1	0	0	

TUN 2011 AT	set	1	0	0	
<b>Bill No.8 Road Pavement</b>					
Concrete pavement-Main road	km	24.391	0	0	
Sand and gravel mix pavement-local road	m3	2629	0	0	
Asphalt pavement, secondary road-1	km	1.5	0	0	
Construction of market area	m3	2645	0	0	
<b>Bill No.9 Road furniture</b>					
Main roads	Km	24.391	00	0	
Secondary roads	km	3.06	0	0	
Interchanges	km	3.53	0	0	
<b>Bill No.10 Interchanges</b>					
Interchange-1	km	1.4	0	0	
Interchange-2	km	1.7	0	0	
Interchange-3	km	0.43	0	0	
<b>Bill No.11 Relocation of Utilities</b>					
Reconstruction of 35KV line	Lump Sum	1	0.35	35	
Reconstruction of 10KV line	Lump Sum	1	0.33	33	
Reconstruction of 0.4KV line	Lump Sum	1	0.48	48	
New construction power line	Lump Sum	1	0.15	15	
<b>Bill No.12 Greenery</b>					
Seeding of perennial grass, watering and further treatment	Sq.m	123339.00	0	0	
Planting of shrubs, watering and further treatment	Sq.m	22800.00	0	0	
<b>Bill No.13 Retaining walls 16 sets</b>					
Main roads	piece	12	0	0	
Interchange-1	piece	2	0	0	
Interchange-2	piece	1	0	0	
Interchange-3	piece	1	0	0	
Construction of Rip rap on CL203 RWA-2525	piece	1	0	0	
<b>Bill No.14 Lighting</b>					
Main roads	km	24.391	0	0	

25. Tree cutting activity is being carried out by the subcontractor for the total area of 75,000 m<sup>2</sup>. About 33,934 m<sup>2</sup> has been cleared out and 2424 trees of girth size 18 cm and above have been rooted up to June 2019. The affected tree cutting area belongs to State Forestry Fund (SFF) and the respective permits have been obtained from National Forest Agency (NFA). In addition to that for cutting of red list species coming in RoW, the approval has been granted by MoEPA.

#### 2.4 Information on personnel working on construction site

26. Overall staff hired by the contractor up to June 2019 is given below (Table 4):

Total number of employees - 325

Foreign staff - 160

Local Georgian staff (total) - 186 (138 - HNRB staff, 46 - Subcontractors' staff)

**Table 4: Information of personnel working at site during reporting period**

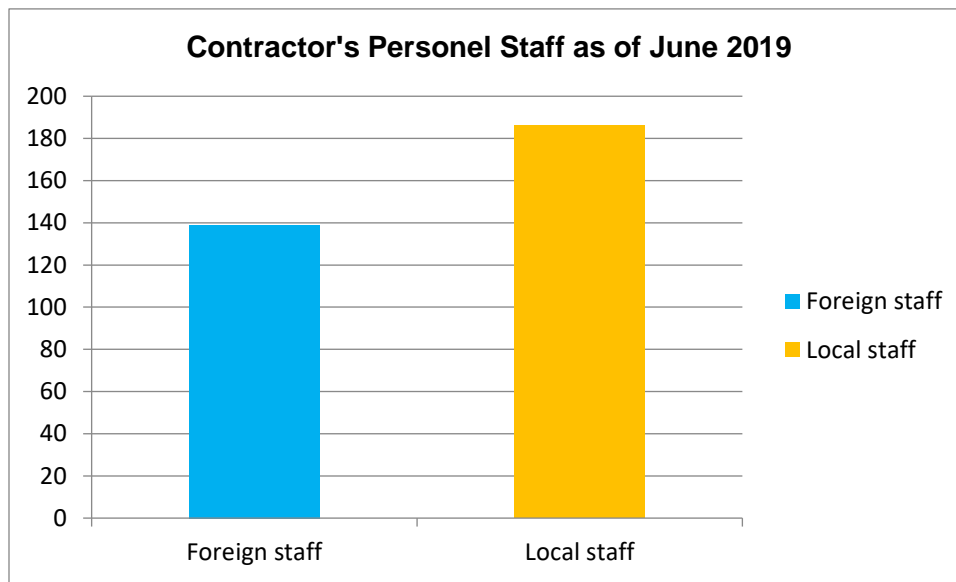
#	Position	HNRB		Subs		Sum
		Foreigner	Local	Foreigner	Local	
1	Project Manager	1	0	0	0	1
2	Site Manager	2	0	0	0	2
3	Construction Engineer	4	3	0	2	9
4	Engineer staff	18	0	0	0	18
5	Technical office	0	1	0	0	1
6	Technicians	9	1	0	4	14
7	Skilled Labour	21	12	0	15	48
8	Unskilled Labour	18	58	0	20	96
9	Driver	0	20	0	0	20
10	Operator	5	10	0	0	15
11	Designer	2	0	0	0	2
12	Finance & Administration	8	6	0	0	14
13	Safety Officer	1	2	0	0	3
14	Environmental Manager	0	1	0	0	1
15	Foreman	27	8	0	7	42
16	Repairman	2	4	0	0	6
17	Secretary	0	0	0	0	0
18	Security	0	2	0	0	2
19	Forest Expert	0	0	0	0	0



20	Mechanical Department	3	0	0	0	3
21	Tunnel works crew	18	10	0	0	28
	Total	139	138	0	48	325

27. The graphical presentation of number of foreign and local staff hired by the contractor is shown in the figure 3.

**Figure 3: Contractors Personal as of June 2019**



## 2.5 Description of Any Changes to Project Design

28. No changes in project design during the reporting period; however, all the shop drawings submitted by the contractor from June 3<sup>rd</sup> to June 16<sup>th</sup> 2019 related to main axis of road, bridges, and tunnels were rejected and returned by the Engineer to contractor for the correction.

## 2.6 Description of Any Changes to Agreed Construction Methods

29. No changes to the agreed construction methods were approved during the reporting period.

### **3. ENVIRONMENT SAFEGUARD ACTIVITIES**

#### **3.1 General Description of Environment Safeguards Activities**

30. During the daily monitoring, the Engineer's environmental specialists check the environmental impacts caused by the construction activities and the compliance with the requirements of EMP and conditions of contracts.
31. In case the incompliance is detected (with the photo evidence) it is recorded, and the Contractor is being informed in written, in order to take corrective actions. If the Contractor fails to take the corrective actions in time, the NCR (Non-Conformance Report) is being issued and sent to the Contractor. NCR sent to the contractor during the reporting period are annexed as Annex 3.
32. The Engineer's environmental specialists prepare the monthly and semi-annual reports that are being submitted to the RD. These reports depict the ongoing construction activities, environmental issues and the status of compliance.
33. Environmental specialists of the contractor and the engineer are conducting weekly site visits to monitor the compliance of EMP. In addition to that HSE specialist of contractor and CS are monitoring the compliance of PPEs, traffic safety and the other safety related issues on daily basis. Daily HSE report is the part of Daily Quality Control (QC) Report.

#### **3.2 Site Audits**

34. Frequent sites visits were carried out by the environmental experts of the engineer, Kashif Bashir and Tengiz Lagidze of the following sites:
  - Office and living campsites of the Contractor;
  - Casting yard of bridge beams
  - Q/C lab territory;
  - Access roads;
  - Tunnels;
  - Bridges;
  - Interchanges;
  - Concrete plants;
  - Cutting of trees.
35. The method adopted for inspection include visual inspection, interview with workers and community and checking the accident records, permits obtained, daily and weekly quality control reports.

#### **3.3 Issues Tracking (Based on Non-Conformance Reports)**

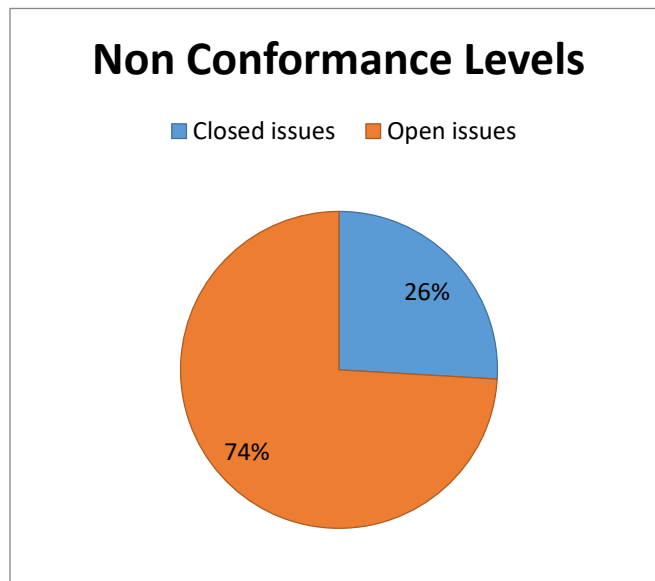
36. Description of issues tracked during the reporting period is given in the Table 5. There was no issue pending from the previous report as there was no construction activity on ground during that half year (July – December 2018)

**Table 5: Summary of issue tracking during the project**

Total number of issues for the Project	27
Number of open issues (for next Q)	20
Number of closed issues (during project life)	07
Percentage closed	26 %
Issues opened this reporting period	27
Issues closed this reporting period	07

37. Data on the number of closed and open issues is presented in Figure 4. This data is based on the issues that were observed and have been closed or remain open during the monitoring period.

**Figure 4: Non-Conformance levels**



38. Out of twenty-seven (27), seven (7) issues were closed and few of them were partially mitigated. Table 5 shows the number of emerged and closed issues during the reporting period. The contractor showed willingness to resolve the issues, especially, related to the provision of PPEs. These issues have been continuously discussed during progress meetings review meeting during the month of June and minutes of meetings are officially recorded to follow up.

**3.4 Trends**

39. Most of the violations by the contractor include the mud carried by the vehicle’s tires to the highway E-60, waste management, insufficient lavatories leading open defecation, electrical hazards, sedimentation loading degrading the water resources, absence of first aid kit , erosion control and slope stability. Violations are gradually fixed and after the Engineer’s observations, the Contractor takes respective endeavors and mitigation measures to resolve the issues.

### 3.5 Unanticipated Environment Impacts or Risk

40. During the month of June 2019, few unanticipated events were observed having potential impacts on land and water resources and socioeconomic attributes (Table 6).

**Table 6: Unanticipated Impacts during the reporting period**

#	Environmental Impact	Outcome	Date	Mitigation Measure	Status
1	Land and water pollution due to open defecation by the workers	Land, surface water contamination	June 2019	Provision of lavatories, portable toilets to the workforce	Contractor provided five portable toilets at the site
2	Oil spill from the parts of drilling machine of sub-contractor for boreholes	Land, water contamination	June 2019	Drilling machine need to be replaced	Pending

#### 4. RESULTS OF ENVIRONMENTAL MONITORING

##### 4.1 Overview of the Monitoring Conducted During Current Period

41. As there is no official commencement of project works during reporting period, Instrumental monitoring was not carried out by the contractor. Contractor has been advised several times during the meetings on June 18, 2019 and June 26, 2019 to start instrumental monitoring for air water and noise & vibration. The contractor has hired the certified laboratory and started monitoring of noise, air, surface water, wastewater and ground water quality starting from August 2019.
42. The available results are for ground water & surface water analysis carried out by contractor for the use of water in concrete mixing from DG consulting laboratory. The samples were taken from the main camp site for groundwater and River Dzirula for surface water analysis. Results are tabulated in Table 7&8; while, detailed results are given in Annex 2. The ground water results reveal microbiological contamination which may be due to wrong sampling and sample need to be revised.

**Table 7: Chemical and microbiological analysis of ground water**

#	Parameters	Results	Unit	WHO Guidelines
<b>Physical &amp; Chemical Tests</b>				
1	pH	7.5	-	6.5 -8.5
2	Total Dissolved Solids (TDS)	550	mg/l	1000
3	Chloride (Cl)	20.95	mg/l	250
4	Hardness	5.3	mg/l	500
5	Nitrates (NO <sub>3</sub> )	4.04	mg/l	50
6	Sodium	-	mg/l	200
7	Turbidity	-	NTU	5
8	Fluoride (F)	-	mg/l	1.5
9	Nitrites (NO <sub>2</sub> )	0.066	mg/l	3
10	Arsenic (As)	-	mg/l	0.01
11	Taste	-	-	Non-Objectionable and Acceptable
12	Color	-	CU	15
13	Odor	-	NS	NS
<b>Microbiological</b>				
1	Total Coliforms	Over the countable limit	CFN/300 ml	Not allowed
2	Escherichia coli	ND	CFN/300 ml	Not allowed

#	Parameters	Results	Unit	WHO Guidelines
3	Pseudomonas aeruginosa	20	CFU/300 ml	Not allowed

**Table 8: Surface water analysis of sampler from River Dzirula**

Sr. No.	Parameters	Unit	Analysis Result
1	Nitrate	mg/l	4
2	Lead	mg/l	<5
3	Zinc	mg/l	<5
4	Oil & grease	Visible traces	ND
5	Detergents	Stable foam	ND
6	Color	Darker than pale yellow	Without color
7	Suspended matter	>4 ml	ND
8	odor	Strong smell other than the odor of potable water	ND
9	Acids	pH<4	7.82
10	Humic matter	Color darker than yellowish brown	Without color
11	Dissolved matter	100 mg/l	106
12	Chloride	<500mg/l	6.40
13	Sulphate content	<2000mg/l	6.98
14	The equivalent sodium oxide content of the water	Exceeds 1500mg/l	10.11
15	Dissolved matter NaCl - Na2SO4 - Na2CO3	mg/l	20.86
16	Dissolved matter NaC	mg/l	10.54
17	Phosphates	<100 mg/l	0.38

43. Environmental monitoring for air quality criteria pollutants, water and noise level would be measured in second half of the year to determine the effect of construction on pollution levels.

#### 4.2 Summary of Monitoring Outcomes

44. For regular monthly instrumental monitoring of the parameters for air, water and noise levels and control the pollution levels, the contractor has hired the DG consulting certified laboratory for second half of the year 2019.

#### 4.3 Material Resource Utilization

45. As for 30 June 2019, following materials were mobilized on site by the Contractor:

**Table 9: Material mobilization**

#	Materials	Unit	Delivered before reporting period
1	Gravel from Quarry Site	m <sup>3</sup>	5,630.00
2	Reinforcement	t	8,503.00
3	Cement	t	997.00

46. The cut trees were handed over to the administration of the SFF based on the concluded Delivery-Acceptance Act.

47. The scrap material is collected and stored only at designated areas.

#### 4.4 Waste Management

48. The Contractor has developed a detailed Waste Management plan. The Contractor has signed an agreement with the Kharagauli Municipality (Kharaguldasuftaveba) regarding provision of the waste containers, collection and transportation of waste. Information regarding the generation of waste is given in the Table 10.

**Table 10: Waste management**

#	Domestic/Hazardous Waste & Sewage	Estimated Volume	Storage Area	Licensed Company
1	Household waste	25 m <sup>3</sup>	Camp sites	Kharagauli Municipality (Kharaguldasuftaveba)
2	Wastewater	200m <sup>3</sup>	Wastewater treatment plant	Kharagauli Municipality (Kharaguldasuftaveba)
3	Used tires	-	Workshop designated area	CC to find licensed Contractor for hazardous waste
4	Used batteries	-	Workshop designated area	CC to find licensed Contractor for hazardous waste
5	Hydraulic and used oil	-	Oil Change designated area	CC to find licensed Contractor for hazardous waste
6	Paints and other chemicals	-	Workshop designated area	CC to find licensed Contractor for hazardous waste

7	Chemical additive tanks	-	Plant yard designated area	CC to find licensed Contractor for hazardous waste
8	Oil drums	-	Plant yard designated area	CC to find licensed Contractor for hazardous waste
9	Used food oil	10 liter	Camp separate wastebaskets	Kharagauli Municipality (Kharaguldasuftaveba)
10	Bulbs, cartridges	5 pcs	Camp separate wastebaskets	Kharagauli Municipality (Kharaguldasuftaveba)
11	Bloody bandage, used medical injection etc.	-	Camp separate wastebaskets	CC to find licensed Contractor for hazardous waste

#### 4.4.1 Current Period

49. The main source that generates the big amount of the waste is earthworks, specifically: excavation of the soil and rock soil material excavated from the tunnels. Estimated calculations for spoil generation are given below:

Estimated spoil generation: 2,250,000 m<sup>3</sup>

Estimated spoil reuse for embankments: 330,000 m<sup>3</sup>

Spoil need to be disposed of: 1.920,000 m<sup>3</sup>

50. Contractor is in process for identifying the disposal areas, Engineer's environmental expert visited the disposal sites identified by contractor with contractor's environmental officer and related staff in June 2019. Out of nine (9) identified sites, five (5) alternative sites were visited taking into account the suitability for spoil disposal. Three out of five were accepted by the Engineer subject to the approval from the RD, ADB and Ministry of Environment Protection and Agriculture (MoEPA) and the other two were rejected taking into account the environmental issues. The contractor has been advised to fulfill the requirement for the preparation of the site assessment report and Rapid Environment Assessment (REA) as per Appendix O of the EIA to meet ADB safeguard requirements through E-mails. To comply with that, the contractor has submitted the due diligence report for one of site # 4-9 to the engineer for review.

#### 4.5 Health and Safety

51. The Contractor has appointed two HS specialists: Mr. Dadashi Kukhalashvili (HS Lead Advisor/Engineer) and Mr. Alexandre Chitadze (HS trainer) at the site. They are responsible for maintaining safety and protection against HS accidents. They are available on-site daily basis.

52. The Engineer has mobilised local HS specialist – Mr. Mikheil Bagauri and junior HS specialist – Mr. Khvicha Kontselidze.



#### 4.5.1 Community Health & safety

53. One traffic accident had been recorded in the log book during the reporting period. Particular details of the accidents are given in the Table 11.

**Table 11: Traffic related accidents (January - June 2019)**

#	Date	Description	Measures taken
1	26.06.2019	At 2:45 PM Minibus (FORD Transit, reg.# SS-985-SO) hit the stopped HNRB vehicle (MITSUBISHI L200 Reg. # HN-123-RB) from behind.	Traffic police and Insurance company were communicated immediately. No injuries occurred.

54. Contractor has been advised during site inspections and progress meetings held on June 18, 2019 and June 26, 2019 to stop the open defecation by the workers by providing sufficient lavatories and restrict trespassing with fencing and security arrangements.

#### 4.5.2 Occupational Health & Safety

55. Contractor is providing the PPEs to the Workers; however, enforcement to use is lacking and contractor is being advised for strict compliance by giving the warnings on yellow tags to the workers, discussions in the progress meetings. Two strict warnings have been given regarding the use of loader for working at height. An issue regarding the quality of safety harness was also under discussion and the contractor agreed to replace them in meeting on June 26, 2019

56. Particulars of the accidents that occurred during the reporting period are given below in Table 12.

**Table 12: Works related accidents reported during the reporting period**

#	Date	Description	Measures Taken	Follow up
1	28.03.2019	At 1:00 PM, during construction activities at the HNRB Main Camp in the village Boriti, Kharagauli Municipality, excavator entered the area under the high voltage (10 kW) electrical power lines and the boom came into contact with cables and started sparking. Operator reacted immediately and reversed backwards from the restricted zone.	Works stopped immediately. HS supervisor evacuated all personnel from the risk zone. The excavator stopped working and parked in a safe zone.  No injuries occurred.	HS Training had been carried out.  Contractor will be bound to maintain the safe distance by establishing "No Approach Zone under or around the high-power lines in conformance with the Table

				2.3.2 of IFC/ WB EHS guidelines
2	25.06.2019	At 5:00 PM, near the entrance of the HNRB Main Camp, in the village Boriti, Kharagauli Municipality, dump truck of the subcontractor (LTD Innovator) made unintentional contact with the power lines, located directly over the entrance of the Main Camp.	Works stopped immediately. Subcontractor and HNRB management were informed. HS supervisor evacuated all personnel from the risk zone.  No injuries occurred.	

57. Trends related to the accidents reported during the reporting period are given in Table 13.

**Table 13: Types of accidents reported (January - June 2019)**

Accident Type	Reporting Period (Jan - Jun 2019)	Total
Near Miss	2	2
Accident Minor	3	3
Accident Major	0	0

#### 4.6 Trainings

58. In June 2019 the Contractor's Safety Specialist conducted the Fire Safety Training and Technical Safety Training. Supervising staff was trained to control safety related matter in the field. Further training programs are being arranged to train the local and transitional workforce relating to environment protection and their own safety and the others.

59. Induction training on environmental issues was conducted for the Contractor staff and management in June 2019. The training covered basic knowledge related to Environmental Legislation (Inc. Red List, Red Book), Sensitive Receptors, air quality, waste management, land contamination, spill prevention, local biodiversity, noise & vibration and remedial measures (The attendance lists are enclosed in Annex 5).

#### 4.7 Grievance redress mechanism and complaints

60. As the project is at preparatory stage and contractor is involved in the construction of project related facilities such as campsite and batching plants etc. The Social safeguard experts are not mobilized yet. Therefore, proper GRM is not at place at this stage. However, door to door meetings were carried out by the environmental engineer with the help of contractor's environmental manager in order to record the grievances during the month of June 2019, if any, related to project activities. Three complaints regarding dust, noise and slope protection were recorded and contractor has been advised to consult with the affected people and take the corrective action in this regard. The detail of grievances recorded is given as Annex 4. Formation of GRC is under process and would be notified as soon as possible during the next month and will be reflected in the next Semi-annual EMR as of July-December 2019.

61. Contractor has placed complaint box in the main campsite and nominated the focal person and set up the communication line for complaints resolutions:

hnr.d.ge.f2.hse@gmail.com

Mr. Achiko Magradze Cell: +995599270550

## 5. FUNCTIONING OF SSEMP

### 5.1 SSEMP Review

62. Contractor with full assistance from the international environmental safeguard expert of the engineer has prepared SEMP during June 2019 and its sub-plans and the corrected version of SEMP was submitted to RD through letter no. 0025/CKUSE60/UBM-GE dated: July.08.2019 which has been approved on August 12, 2019.

63. At this stage, edit to the SEMP is not applicable; however, one section has been added to the SEMP during preparation regarding the suggested monetary penalties to discourage the contractor from any environmental violations. Sub-plans of the SEMP include the followings:

(i) Topic Specific Plans:

- (a) Waste Management Plan;
- (b) Spoil Disposal Plan for Arrangement of Spoil Disposal Area;
- (c) Re-cultivation Plan;
- (d) Traffic Management Plan;
- (e) Occupational Health and Safety Plan;
- (f) Emergency Response Plan;
- (g) Air Quality Plan;
- (h) Spill Response Plan;
- (i) Noise and Vibration Management Plan;
- (j) Clearance, Re-vegetation and Restoration Management Plan;
- (k) Groundwater Management Plan;
- (l) Tunnel Blasting Plan;
- (m) Biodiversity Management Plan.
- (n) Grievance Redress Mechanism;
- (o) Chance Find Procedure.
- (p) HSE Plan

(ii) Site Specific Plans:

- (a) Construction Camps Plan;
- (b) Concrete Batching Plants and Workshop Plan;
- (c) Bridge Construction Plan (for each bridge construction site).

**Table 14: Identified Non-Conformances**

ID #	Affected Location	Date	Issue raised	Mitigation Required	Estimated time	Status of Action
1	Main Campsite Quality Control Lab Sub-Camp site	June 2019	Insufficient lavatories & discharge of sanitary wastewater	<ul style="list-style-type: none"> <li>• Provision of lavatories and shower facilities with sufficient amount of water- OSHA requires one toilet for 20 workers and one urinal for 40 workers</li> </ul>	July 2019	Action Required  Wastewater treatment

	Batching Plant 1 Batching Plant 2			<ul style="list-style-type: none"> <li>Contractor needs to provide the sanitary wastewater treatment system to treat the sanitary wastewater meeting the requirement of Maximum Admissible Concentration (MAC) of harmful substance discharge to surface water approved by Ministry of labor, Health, and social protection plus indicative values for treated sanitary sewage discharge (Table 1.3.1 of IFC/ World Bank EHS Guidelines, page 30).</li> <li>Sludge should be disposed of in compliance with local regulatory requirements.</li> </ul>		facility has been constructed at main campsite; however, the test result for effluent quality are quite higher than indicative values in terms of BOD (187mg/l) COD (240 mg/l) and total N (111mg/l)
2	Main Campsite Quality Control Lab Sub-Camp site Batching Plant 1 Batching Plant 2	June 2019	Storm water runoff treatment to capture oil & grease	<ul style="list-style-type: none"> <li>Storm water runoff needs to be treated for sediments control and to capture oil and grease</li> <li>There should be no mixing of storm water and sewage water</li> </ul>	July 2019	Action required
3	Main Campsite Quality Control Lab Sub-Camp site Batching Plant 1 Batching Plant 2 Semi-finished workshop Tunnel portal excavation site, Bridge abutment excavation site	June 2019	Fencing	<ul style="list-style-type: none"> <li>Proper fencing required for the campsites and active construction sites</li> </ul>	July 2019	Action required

4	Batching Plant 1 Batching Plant 2 Rebar Area Tunnels portals	June 2019	Land Contamination & Noise due to Generators	<ul style="list-style-type: none"> <li>Generator need to be placed on built frame with hard and impermeable surfaces to avoid land and groundwater contamination</li> <li>Enclosure required for Generators</li> </ul>	July 2019	closed
6	Project site	June 2019	Environment staff mobilization	<ul style="list-style-type: none"> <li>Environmental expert should be at the site on permanent basis for daily compliance monitoring</li> </ul>	July 2019	Action required
7	Entire road length & project related facilities	June 2019	CEMP	<ul style="list-style-type: none"> <li>CEMP need to be prepared by contractor and to get approved by RD</li> </ul>	July 2019	Approved in August
8	E-60 Highway & Main campsite, sub camps, workshops, batching plant 1&2, tunnel portals	June 2019	Traffic Management	<ul style="list-style-type: none"> <li>Traffic arrangements for onsite control and flagmen to control the traffic to and from the campsite and active construction site.</li> <li>Traffic signs, warning and direction signs with illumination needs to be erected at cross road points and diversions</li> <li>Traffic management plan in coordination with local police, and awareness raising program for communities</li> <li>Procedural adaptations are required to avoid/ minimize traffic related accidents of workers and communities</li> </ul>	July 2019	Under process
9	Main Campsite Quality Control Lab Sub-Camp site Batching Plant 1 Batching Plant 2 Close to River	June 2019	Erosion Control & Slope Stability	<ul style="list-style-type: none"> <li>Erosion control, slope stability arrangements (retaining wall/ structure) are required to limit the flow of material</li> </ul>	July 2019	No action taken

10	Batching Plants	June 2019	Mud carried by vehicle Tires	<ul style="list-style-type: none"> <li>Vehicles leaving the storage area of batching plant 2 carrying the mud to the road by their tires. Surface needs to be kept clean, free of muddy water and hardened with proper drainage. At batching plant 2 muddy water needs to be restricted to flow on the road.</li> </ul>	July 2019	closed
11	Batching plant 1 & 2	June 2019	Concrete Washout	<ul style="list-style-type: none"> <li>Concrete washout facility required at batching plants and driver should was the concrete tank at the facility</li> </ul>		Closed
12	Main Campsite Quality Control Lab Sub-Camp site Batching Plant 1 Batching Plant 2	June 2019	First Aid Kits	<ul style="list-style-type: none"> <li>Provision of first aid kit is required and to be maintained at all the campsite and active sites along with medical practitioner and displaying of the emergency numbers of nearest well-being facilities/ hospitals.</li> </ul>	July 2019	Action required
13	Project site	June 2019	Provision and ensuring the use of PPES	<ul style="list-style-type: none"> <li>PPEs need to be provided for head protection, eye and ear protection, face protection, body protection, feet protection, hand protection taking into account the nature of work. None of the worker was seen wearing eye protection and ear protection, especially, while working close to the noisy generator at batching plants</li> </ul>	July 2019	Action required
14	Camps sites Batching plants Parking area & Workshop Security guard room	June 2019	Fire Hazard	<ul style="list-style-type: none"> <li>Proper firefighting system with fire truck should be in place.</li> <li>Public safety management card showing the contact detail in case of emergency</li> </ul>	July 2019	Action Required

				must be displayed at campsites		
15	Campsites Sub-campsites	June 2019	Complaint Cell establishment	<ul style="list-style-type: none"> <li>Complaint Cell shall be established and complaint register need to be placed at all sites and updated on regular basis so that community can contact for their grievances to the contractor (community relation officer)</li> </ul>	July 2019	Partially complied
16	Campsites and Active Construction site	June 2019	Waste Management	<ul style="list-style-type: none"> <li>Minimize the Solid waste generation by adopting best management at the active construction sites and also from the camp sites. Waste segregation required</li> </ul>	July 2019	Action Required
18	Sub camp site at Khunevi	June 2019	Electrical Hazard	<ul style="list-style-type: none"> <li>Electrical cords, cables, connected with generators creating electrical hazards and needs to be hanged over properly</li> </ul>	Immediate	Closed
19	Batching plants & Semi finished workshop	June 2019	Covering of material with tarpaulin and Shed for material storage	<ul style="list-style-type: none"> <li>Material need to be covered for sustainable use of resources</li> </ul>	August 2019	closed
20	Main campsite, sub camp, batching plants, workshops and semi-finished workshops	June 2019	Site Security	<ul style="list-style-type: none"> <li>Security guards need to be hired and guard room should be equipped with water, fire extinguisher, shoe rack, emergency light. Uniform and PPEs</li> </ul>		Action Required
21	Project area of influence	June 2019	Spoil Disposal	<ul style="list-style-type: none"> <li>1.9 Million Cubic meter spoil needs to be dumped in environmentally friendly way</li> </ul>	Project life	Action required
22	Batching plant 1 Sub-camp site	June 2019	Complaints from Residents about dust, noise and collapse of	<ul style="list-style-type: none"> <li>Chance of slope failure should be mitigated by provision of retaining wall</li> </ul>	July 2019	closed

			structure due to slope failure			
23	Main Camp, Batching Plants #1, #2, Sub Camp #1	June 2019	Deficiency of spill kits	<ul style="list-style-type: none"> <li>Spill kits shall be provided at each construction site.</li> </ul>	immediate	Action Required
24	Along the existing road	June 2019	Wood logs from tree cutting along E-60	<ul style="list-style-type: none"> <li>Wood logs from tree cuttings needs to be removed from road side creating vehicle collision hazard</li> </ul>	July 2019	Action required
26	Tunnel portal 2	June 2019	Use of loader for working at height by workers	<ul style="list-style-type: none"> <li>Loader should not be used by workers for working at height</li> </ul>	immediate	Closed
27	Bridge No 3	June 2019	Falling rock boulders/ debris blocking the River	<ul style="list-style-type: none"> <li>Protect the River from falling rocks</li> </ul>	immediate	Action Required

64. There is no pending non-conformance from last bi-annual report as there was no construction activity at ground during that period.



## **6. GOOD PRACTICES**

### **6.1 Good Practices**

65. Following best practices are being adopted by the contractor due to site inspections, issuance of NCR and discussions during the weekly project preparatory meetings and progress meetings headed by the engineer:
- Contractor is providing the PPEs to all the workers according to the nature of job and enforcing the workers for the use.
  - Traffic Management is being improved by providing the speed bumps, barricades, signage, traffic lights for guidance to road users
  - Rebars/ steel material at semi-finished workshops are being covered with tarpaulin and placed on built stands
  - Cemented floor and concrete access roads are being constructed for batching plant 1 & 2
  - Facility for concrete washout has been provided at the batching plants
  - Generators Enclosure are being installed at batching plant 1 & 2
  - Complaint box provided at campsite and showed willingness to resolve the complaints received during interview with the communities and consulting with the complainers

## **7. SUMMARY AND RECOMMENDATION**

### **7.1 Summary**

66. Currently the project is at site preparation stage for construction of camps sites, batching plants, workshops, parking facility, warehouses, and site offices. In addition to that other activities including: excavation for bridge abutments, piling, drilling of boreholes for geotechnical investigation, vegetation clearance, and preparatory work for tunnel portals are being carried out.
67. Analyzing the contractor environmental management system reveals that contractor pay less attentions to site inspections and resolve the environmental problems
68. There are several open environmental issues in the Project. A total of 27 issues were observed of which 20 are still open in the current period. NCRs were issued to contractor in June 2019 for these issues and the contractor has been advised repeatedly to correct the non-conformances in progress meetings. The Major 15 issues include: traffic management, open Defecation, sanitation facilities, sanitary wastewater discharge, storm water runoff, first aid facilities, slope stability and soil erosion, re-vegetation of slopes, watercourse degradation, fencing of sites, spoil disposal, Top soil, workers accommodation, water usage permits, complaints from residents.
69. Except the preparation of the SEMP, there was no pending issue from the last reporting period i.e. July-December 2018 as there was no activity on the ground.

## 7.2 Recommendations

70. Following bullets summarize the recommended remedial measures which contractor is required to adopted in the 3<sup>rd</sup> and 4<sup>th</sup> quarter of 2019 to meet the requirement furnished in the EMP at this stage of the project:
- Sustainable use of raw material by covering under the shed and material tracking system at place -Q3-Q4 2019
  - Topsoil need to be properly stored and conserved -Q3 2019
  - Open defecation should be strictly restricted and All construction sites should be equipped with lavatories and sufficient water supply -Q3 2019
  - Water sprinkling during dry and windy days -Q3-Q4 2019
  - Hiring for environmental supervisors for daily monitoring -Q3 2019
  - Treatment and testing sanitary wastewater prior to ultimate discharge -Q3 2019
  - Restricting the machinery to enter the river protection zone of Dzirula and Rikotula. If unavoidable use silt curtains/ fence/ barricading to control silt and boulders flowing in to water courses -Q3 2019
  - Re-vegetation of slopes immediately after disturbance not after construction taking the benefit of the season -Q3 2019
  - Provision of workplace safety Instructions in front of workstation based on the type of work being carried out -Q3 2019
  - Provision of temporary sediment Basin at all sites for bridge abutment -Q3 2019
  - provision of steel bridges for temporary River crossings instead of Pipes -Q3 2019
  - Construction of sediments & grease traps at all campsites and sub camps, batching plants -Q3 2019
  - Provision of secondary oil containments in the form of lube drips where oil and fluids are taken from drums and for the portable generators -Q3 2019
  - First aid kit and arrangement of medical practitioner and the contact number to be displayed for the nearest wellbeing facilities/ hospitals and ambulance. Contractor need to contact with Boriti hospital for medical arrangements -Q3 2019
  - Firefighting system must be at place at all campsites and active construction sites -Q3 2019
  - Avoid generation of hazardous and non-hazardous waste -Q3 2019
  - Capacity building of school children by CC & SC and provision of reflecting badges to student -Q4 2019
  - The Contractor should arrange measurement of environmental parameters (atmospheric air, noise level, water quality) and provide results to the Engineer –Q3 2019

## ANNEXES

### Annex 1: Project Pictures

**Photo 1: Project information Board along E-60 highway**



**Photo 2: Contractor team tool box meeting**



**Photo 3: Project weekly progress meeting to discuss environment issues**



**Photo 4: Tree cutting activities by the sub-contractor delisted by SFF**



**Photo 5: Complete information of the Project along the road**



**Photo 6: Permit required from MoEPA to delist Endanger species -chest nut**



**Photo 7: Water sprinkler spraying water to suppress the dust for access road**



**Photo 8: Diesel Truck being used for refueling during preparation work**



**Photo 9: Public consultation with the owner of affected house in Khevi Village**



**Photo10: Public Consultation in Khevi village**



**Photo 11: Fugitive dust at batching plant 1 Khevi – Advised water sprinkling in dry and windy conditions**



**Photo 12: Steel Bridge on Rikotula at Khevi batching will benefit the community also for access**



**Photo13:Hard floor for material yard with storm water drains- need to be covered - storm water interceptor required**



**Photo14:Concrete washout recycling facility for Concrete mixer trucks at Batching Plant 1**



**Photo 15: Heaps of topsoil stored for reuse in landscaping and re-vegetation**



**Photo 16: Speed control signage at access road**



**Photo 17: Generator enclosure at batching plant 2- conformance of NRC**



**Photo 18: Muddy floor – Mud is carried by the vehicle tires to E60 road.**



**Photo 19: Zero tolerance regarding safety**



**Photo 20: Retaining wall being constructed to avoid the slope failure**



**Photo 21: Safety equipment for distribution at Rebar workshop**



**Photo 22: Advised worker to strengthen the Fence at Rebar sites**



**Photo 23: Hot work at semi-finished workshop – HSE specialist instructions for strict compliance**



**Photo 24: Material stored and covered in good condition to prevent deterioration and wastage**



**Photo 25: Wood logs need to be removed by municipalities – advised the contractor to contact with municipalities**



**Photo 26: Semi-finished workshop – Cylinders placed in cage**



**Photo 27: Safety signage board installed along the road**



**Photo 28: Traffic bumps and line separation required along the road to control the speed**



**Photo 29: Guard room need to be equipped with fire extinguisher, hangers, drinking water dispenser and PPEs**



**Photo 30: Erosion control work at camp site along E 60**



**Photo 31: Portable toilet provided by subcontractor – Inventor at campsite 1**



**Photo 32: Tube well installed for ground water extraction**





**Photo 33: Topsoil need to be reserved to control the flow of sediments**



**Photo34: Sanitary waste water treatment system installed at main campsite**



**Photo 35: Separate lavatories for ladies and gents at main campsite**



**Photo 36: Electric supply system-associated facility work being carried out**



**Photo 37: Complaint box with first anonymous complaint from the worker at main campsite**



**Photo 38: Waste container placed for segregation at main camp site**



**Annex 2: Surface water and ground water monitoring results**  
**Ground Water Test Results**

Parameters	Measuring Unit	Acceptable Range **	Results
<b>Organoleptic Parameters</b>			
Color	Degree	15	-
Turbidity	NTU	2	-
<b>General Parameters</b>			
pH	-	6-9	7.5
TDS	mg/l	1000 (1500)	550
Conductivity	µs/sm	-	627
Total Petroleum Hydrocarbons (TPH)*	mg/l	0.1	-
Permanganate Oxidation	mg O/l	3.0	-
Detergent*	mg/l	0.5	-
Hardness	mg-eqv/l	7 (10)	5.3
Calcium (Ca)	mg/l	140	63
Magnesium (Mg)	mg/l	85	25.8
Sodium (Na)*	mg/l	200	-
Chloride (Cl-)	mg/l	250	20.95
Hydrocarbonate (HCO <sub>3</sub> <sup>-</sup> )	mg/l	-	347.7
Sulphate (SO <sub>4</sub> <sup>-2</sup> )	mg/l	250	33.76
Nitrate (NO <sub>3</sub> <sup>-</sup> )	mg/l	50	4.04
Nitrite (NO <sub>2</sub> <sup>-</sup> )	mg/l	0.2	0.066
Iron (Fe Total)	mg/l	0.3	-
Zinc (Zn 2+)*	mg/l	3.0	-
Barium (Ba+2)	mg/l	0.7	-
Boron (B Total )*	mg/l	0.5	-
Arsenic (As)*	mg/l	0.01	-
Mercury (Hg, Inorganic)*	mg/l	0.006	-
Cadmium (Cd , Total )*	mg/l	0.003	-
Manganese (Mn, Total)*	mg/l	0.4	-

Molybdenum (Mo Total )*	mg/l	0.07	-
Nickel (Ni, Total)*	mg/l	0.07	-
Selenium (Se, Total)*	mg/l	0.01	-
Copper (Cu, Total)*	mg/l	2.0	-
Lead (Pb, Total)*	mg/l	0.01	-
Fluoride (F-)*	mg/l	0.7	-
Chromium (Cr <sup>6+</sup> )*	mg/l	0.05	-
Antimony (Sb)*	mg/l	0.02	-
Cyanide (CN <sup>-</sup> )*	mg/l	0.07	-
<b>Organic Compounds</b>			
Total Pesticides *	mg/l	0.05	-
<b>Regulated toxic substances</b>			
Aluminum (Al <sup>3+</sup> )*	mg/l	0.1	-
Formaldehyde	mg/l	0.05	-
Chloroform*	mg/l	0.3	-
Silica Acid ( Si)	mg/l	-	-
Polyphosphates (PO <sub>4</sub> <sup>-3</sup> )	mg/l	3.5	-

<b>Microbiological Parameters**</b>				
Total Coliforms	CFN in 300 ml	not allowed	Over the countable limit	
Escherichia coli	CFU in 300ml	not allowed	Not detected	
Pseudomonas aeruginosa	CFU in 250 ml	not allowed	21	
Streptococcus faecalis	CFU in 250 ml	not allowed	Over the countable limit	
Mesophyle aerobes and facultative anaerobes	37 ° C	CFU/ in 1 ml	20	Over the countable limit
	22 ° C		100	Over the countable limit

\*- SYN LAB – Accredited laboratory (Germany)

\*\* The resolution of Georgian Government № 58 (15.01.14) According to the requirements of “The approval of technical regulations of potable water”

Head of the Laboratory:  
Nino Shavgulidze



DG Consulting Ltd

## Surface Water Test Results – River Dzirula

DG Consulting – Laboratories      Test Report № 985

Page 2 of 2  
DGL-RE 41-E-01

#	<i>Parameters</i>	<i>Unit**</i>	<i>Results</i>
1	Oil & Grease	visible traces	Not detected
2	Detergents	stable foam	Not detected
3	Colour	darker than pale yellow	Without color
4	Suspended matter	> 4 ml	Not detected
5	Odure	Strong smell other than the odure of potable water	Not detected
6	Acids	pH<4	7.82
7	Humic matter	colour darker than yellowish brown	Without color
<b>Chemical tests</b>			
#	<i>Parameters</i>	<i>Unit</i>	<i>Results</i>
8	dissolved matter	:100 mg/l	106
9	Cloride	<500 mg/l	6.40
10	Sulphate content	<2000 mg/l	6.98
11	The equivalent sodium oxide content of the water	exceeds 1500 mg/l	10.11
	dissolved matter NaCl	mg/l	10.54
	dissolved matter NaCl - Na <sub>2</sub> SO <sub>4</sub>	mg/l	20.86
	dissolved matter NaCl - Na <sub>2</sub> SO <sub>4</sub> - Na <sub>2</sub> CO <sub>3</sub>	mg/l	20.86
<b>Harmful contamination</b>			
#	<i>Parameters</i>	<i>Unit</i>	<i>Results</i>
12	Posphates (P <sub>2</sub> O <sub>5</sub> )	<100 mg/l	0.38
13	Nitrates (NO <sub>3</sub> - )	<500 mg/l	4
14	Lead (Pb <sup>2+</sup> )*	<100 mg/l	<5
15	Zink (Zn <sup>2+</sup> )*	<100 mg/l	<5

\*- SYN LAB – Accredited laboratory (Germany)

\*\*-BS EN 1008:2002 – Mixing water for concrete - Specification for samplings testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete

**Comment: The quality of water sample complies with the requirements of British standard BS EN 1008:2002 applicable for the water for concrete preparation**

Head of the Laboratory:  
Nino Shavgulidze



*Handwritten signature and date:*  
23.07.2019

DG Consulting Ltd

## River Water Test Results

DG Consulting – Laboratories

Test Report № 984

Page 2 of 2  
DGL-RE 41-E-01

#	Parameters	Unit **	Results
1	Oil & Grease	visible traces	Not detected
2	Detergents	stable foam	Not detected
3	Colour	darker than pale yellow	Without color
4	Suspended matter	> 4 ml	Not detected
5	Odure	Strong smell other than the odure of potable water	Not detected
6	Acids	pH<4	7.99
7	Humic matter	colour darker then yellowish brown	Without color
<b>Chemical tests</b>			
#	Parameters	Unit	
8	dissolved matter	100 mg/l	105
9	Cloride	<500 mg/l	5.68
10	Sulphate content	<2000 mg/l	6.98
11	The equivalent sodium oxide content of the water	exceeds 1500 mg/l	10.11
	dissolved matter NaCl	mg/l	9.35
	dissolved matter NaCl - Na <sub>2</sub> SO <sub>4</sub>	mg/l	19.67
	dissolved matter NaCl - Na <sub>2</sub> SO <sub>4</sub> - Na <sub>2</sub> CO <sub>3</sub>	mg/l	19.67
<b>Harmful contamination</b>			
#	Parameters	Unit	
12	Posphates (P <sub>2</sub> O <sub>5</sub> )	<100 mg/l	0.35
13	Nitrates (NO <sub>3</sub> - )	<500 mg/l	6
14	Lead (Pb <sup>2+</sup> )*	<100 mg/l	<5
15	Zink (Zn <sup>2+</sup> ) *	<100 mg/l	<5

\*- SYN LAB – Accredited laboratory (Germany)

\*\*-BS EN 1008:2002 – Mixing water for concrete - Specification for samplings testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete

**Comment: The quality of water sample complies with the requirements of British standard BS EN 1008:2002 applicable for the water for concrete preparation**

Head of the Laboratory:  
Nino Shavgulidze



*Handwritten signature and date:*  
23.04.2019

DG Consulting Ltd

### Annex 3: Non-Conformance reports and photos



## Non Conformance Report




**Project: Construction of Khevi- Ublisa Section (E 60 Highway Route)**

**Contract No:** KURP/CW/OCB-01

**Date of incident:** 28/6/2019

**Contractor:** Hunan Road and bridge construction group

This notice serves to advise you to take remedial/ Corrective action to correct the serious Environmental Non Compliance found during the site inspection on 28/6/2019 which is against the conditions of contract and the FIDIC contract requiring punishment to the polluter:

<p><b>1. Description of nonconformance:</b></p> <p>During the site inspection 28-6-2019, it was found that near tunnel portal 3 site worker was using loader for working at height which is extremely dangerous and at bridge 8 stagnant water is being polluted and acting as breeding habitat for insects</p> <p><b>Figure :</b> i Working at height by using loader,      ii Stagnant water in the excavation- breeding habitat</p> <div style="display: flex; justify-content: space-around;">   </div>		
<p><b>2. Action to be taken to prevent</b></p> <ul style="list-style-type: none"> <li>• Work stopped immediately and warning Given to the Worker</li> <li>• Stagnant water need to be extracted from the excavation within 2 days</li> </ul> <p>All these conditions need to be rectified within 2 days.</p>		
Environmental Engineer	Name: Kashif Bashir 	Date: 28/6/2019

## Non Conformance Report

**Project:** Construction of Khevi- Ubisa Section (E 60 Highway Route)

**Contract No:** KURP/CW/OCB-01

**Date of Incident:** 26/6/2019

**Contractor:** Hunan Road and bridge construction group

This notice serves to advise you to take remedial/ Corrective action to correct the serious Environmental Non Compliance found during the site inspection on 26/6/2019 at night which is against the FIDIC contract requiring punishment to the polluter:

**1. Description of nonconformance:**

Immediate action required to clean out the River Bank contaminated by the garbage thrown by workers and sanitary wastewater being discharged from the septic tank. Sanitary wastewater disposal should be according to Georgian laws and IFC guidelines. This practice need to be stopped in future and you are required to take action immediately

**Figure :** waste thrown by local workers along the river Dzirula, stagnant water taking the way to River



**2. Action to be taken to prevent**

- Sanitary wastewater need to be tested and must be within the MCL according to Georgian law
- Waste need to be removed immediately in one day

All these conditions need to be rectified within a week.

Environmental Engineer

Name: Kashif Bashir

Date: 26/6/2019







Kashif Bashir <bashir.kashif@gmail.com>

---

## Non Conformance Issues Relating to Environment Due to Ongoing Construction Activities

---

**Kashif Bashir** <bashir.kashif@gmail.com>  
To: Mehmet Tosun Turgay <mturgay@ubm.com.tr>

Mon, Jun 24, 2019 at 12:43 PM

Dear Mehmet

Please find attached the " Non Conformance Issues Relating to Environment Due to Ongoing Construction Activities " observed during the site visit carried out on June, 2019 for your kind perusal and further necessary action. Thanks

Kind regards


Kashif Bashir

MS Environmental Engineering ( Sweden), NEBOSH for HSE (UK),

Water Quality Analyst ( MOE Ontario), GIS in Environmental. Management ( Ryerson University Canada)

Cell ;+995 558 15 11 73

---

 **Non Conformance Notice 24-06-19.docx**  
4230K

June 24, 2019

### Nonconformance Issues Relating To Environment Due To Ongoing Construction Activities

Senior environmental engineer visited the campsites and active construction sites on June 19, 2019 and highlighted the following key issues related to non-compliances causing significant potential impacts on various environmental attributes:

- Taking in to account the environment aspect, the campsites do not comply with the conditions set out in EIA approved by Asian Development Bank (ADB), especially, the main campsite in Boriti located on the bank of River Dzirula and doesn't meet the requirement of 500 meter away from the water body ( EMP, page 383 of EIA ) posing the following threats to Riverine ecosystem:
  - Potential chances for the degradation of River water quality from the discharge of sanitary wastewater (about 6,000 litter/100 workers) raising the BOD levels and turbidity,
  - Potential chances for storm water runoff containing oil and grease with waste stream taking its way into the River, especially, during rainy season,
  - Uncontrolled soil erosion from land cleared and de-vegetation causing sedimentation loading to River water and reducing the DO level disturbing the aquatic faunal species.

Contractor needs to provide the sanitary wastewater treatment system to treat the sanitary wastewater meeting the maximum admissible concentration of harmful substance discharge to surface water approved by Ministry of labor, Health, and social protection and indicative values for treated sanitary sewage discharge<sup>1</sup> (Table 1.3.1 of IFC/ World Bank EHS Guidelines, page 30) and sludge should be disposed of in compliance with local regulatory requirements. One treatment system is installed at Boriti campsite from ecohub; however, contractor needs to provide effluent quality tests for sanitary wastewater before ultimate disposal. Furthermore, an efficient system should be required to trap the grease and oil from the storm water runoff generating from the campsites


- No evidence of treatment of sanitary wastewater generating from the toilets of the laboratory along the bank of River was observed. Contractor needs to collect the sewage water, treat it and transfer / dispose of meeting the legal requirements. Better option is the provision of portable toilets/ lavatories
- Drainage line at Boriti campsite, showing the direct discharge of the storm water runoff to the River Dzirula. Storm water runoff needs to be treated for sediments control and to capture oil and grease and there should be no mixing of storm water and sewage water
- No environmental technician on site to take care of environment related matters on daily basis
- No warning taps, flags, and proper fencing to confine construction area was observed
- Generator need to be placed on built frame with hard and impermeable surfaces to avoid land and ground contamination

Kashy



- Display board with information regarding the particular site must be at place at each site
- No dust suppression remedial measures were observed to suppress the fugitive dust during the ongoing drilling and rock breaking activity.
- Poor traffic arrangements were observed for onsite control and flagmen were not observed to control the traffic to and from the campsite and active construction site. Traffic signs, warning and direction signs with illumination needs to be erected at cross road points and diversions. Traffic management plan in coordination with local police, and awareness raising program for communities and procedural adaptations are required to avoid/ minimize traffic related accidents of workers and communities
- No erosion control measures are provided at the campsites and active construction sites. Uncontrolled erosion may cause substantial damage to the water courses (River Dzirula & Rikotula) through sediment loading and impairing the water quality. For example, there are potential chances of damaging the Dzirula River near Khunevi due to uncontrolled erosion because of ongoing activity of spoil disposal. Erosion control measures (retaining wall/ structure) are required to limit the flow of material in to water courses.
- Vehicles leaving the storage area of batching plant 2 carrying the mud to the road by their tires. Surface needs to be kept clean, free of muddy water and hardened with proper drainage. At batching plant 2 muddy water needs to be restricted to flow on the road.
- Slope stability needs to be ensured by adopting best practices, especially, while working close to the Rivers. There are potential chances of slope failure of the River near Khunevi.
- Provision of first aid kit is required and to be maintained at all the campsite and active sites along with medical practitioner and displaying of the emergency numbers of nearest well-being facilities/ hospitals and the persons to be contacted for direct and indirect workers at all the site.
- An ambulance is required at the site equipped with necessary items to respond the medical emergency
- Screening tests of workers for health surveillance are required
- Partial compliance of PPEs was observed. Workers need to be provided PPEs for head protection, eye and ear protection, face protection, body protection, feet protection, hand protection taking into account the nature of work. None of the worker was seen wearing eye protection and ear protection ,especially, while working close to the noisy generator at batching plants
- No proper firefighting system with fire truck in place. Public safety management card showing the contact detail in case of emergency must be displayed at campsites
- Complaint Cell shall be established and complaint register need to be placed at all sites and updated on regular basis so that community can contact for their grievances to the contractor(community relation officer)
- Electrical cords, cables, connected with generators creating electrical hazards and needs to be hanged over properly

Pictorial evidence with description has been attached herewith as Annexure-1 relating to the issues stated above. The above mentioned issues needs to be resolved at the earliest as the

*Kaif* 



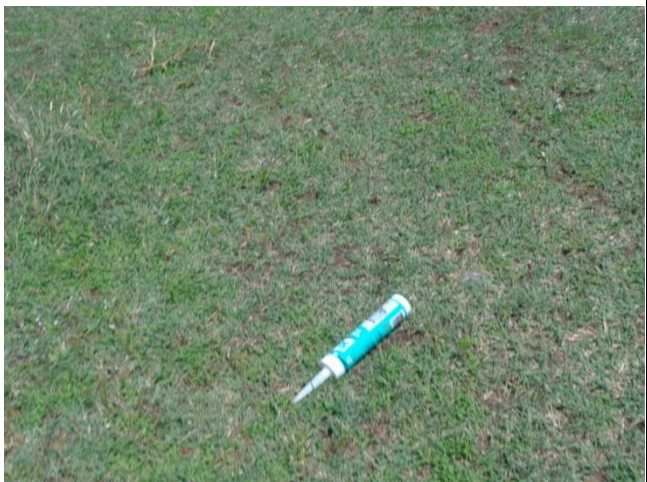
contractor is responsible to protect the environment (both onsite and offsite) according to the 4.18 of the "Conditions of Contract for Construction" and shall ensure that emission, surface discharges and effluent from contractor's activities shall not exceed the values stated in the specification or prescribed applicable laws. In this regard another site visit would be conducted by our environmental engineer to check the compliance in due course of time.






**PICTORIAL EVIDENCES NON- CONFORMANCES**




#	Pictures	Description
1		<p>Drainage line showing the direct discharge of the storm water runoff to the River Dzirula. Storm water needs to be treated for sediments control and to capture oil and grease at Boriti Campsite – Construct the oil and grease interceptors</p>
2		<p>Storm water runoff must be intercepted to control sediments, capture the oil and grease at Boriti Campsite</p>
3		<p>Main Campsite is located on the bank of River Dzirula and doesn't meet the requirement of 500 meter from the water creating the chance for the contamination of Riverine ecosystem.</p> <p>A firm boundary wall/ Fence required to contain/ isolate the site</p>



4		-do-
5		Sanitary wastewater treatment system at main campsite Boriti but parameters need to be tested if they comply with Georgian laws/ IFC guidelines and permit to discharge to River – Capacity to meet the requirement of campsite
6		Sanitary wastewater required to be tested before discharging to watercourse – permission required from the authorities

7		<p>Generator must be placed on built frame, impermeable surface to prevent the soil contamination and groundwater contamination</p>
8		<p>Uncontrolled erosion causing chance of impairment of Dzirula River water quality from the stockpile of fertile layer- Silt fence and diversion channels required</p>
9		<p>Silicon bottle taking its way to the water course</p>


10		Steel bars need to be kept covered by tarpaulin sheets
11		Use of River Water for batching plant (2) at Khunevi
12		Potential chances of uncontrolled erosion due to de-vegetation. Replantation of fast-growing species is required to limit the flow of soil



13		-do-
14		<p>Generator needs enclosure causing nuisance by generating noise more than 80 dB(A) at batching plant 2. Workers shall be provided with ear protection ( Ear plugs)</p>
15		<p>Vehicles leaving the storage area of batching plant carrying the mud to the road by their tires. Surface needs to be hardened with proper drainage.</p> <p>Chances of muddy water coming on the road at batching plant 2.</p> <p>Material needs to covered by shades</p>

16		Chances of slope failure due to inadequate erosion control measures
17		Potential chances of River embankment subsidence, soil taking its way in to the River – slope stability required
18		Sanitary wastewater needs to be treated before ultimate disposal at the bank of River Dzirula – Lab site, Portable toilets required

19		Wastewater being discharged directly to River Dzirula on the Khevi Laboratory Site
20		Built in frame with hard impermeable surface required for generator to avoid land contamination – wire need to be hung over at batching plant - Khunevi
21		Dust control measures required during rock breaking

22		Dusty Conditions during the rock cutting at construction site
23		Erosion control measures required to avoid the contamination/ sedimentation loading of River Dzirula near Khunevi. Temporary measure required at this stage to limit the flow of eroded material in to water body
24		-do-


## Annex 4: Grievance Redress Mechanism

#	Date of grievance	Aggrieved Person		National ID	Address/ Contact number	Location of grievance	Nature of Grievance	Description	Measure Taken	Remarks
		Name	surname							
1	25-6-2019	Zaza	Gelashvili		Village Tsitskiuri # 598161501	Adjacent to sub-camp site	Damage to house structure, dust, noise	Dust, noise, slope failure can damage the house and demanding water supply from contractor bore hole as water extraction for household is expensive in this area	Contractor was requested to provide groundwater for the compensation	Contractor consulting with the resident for possible solution
2	25-6-2019	Lamra	Gelashvili		Village Tsitskiuri # 59264467	Adjacent to sub-camp site	Damage to house structure due to slope failure, Broken fence, dust & noise	Movement of the ground material can cause slope failure damaging the house	Contractor starting building retaining wall to protect soil erosion and slope failure	Re-Vegetation required and need to complete the retaining wall
3	26-6-2019	Nunu	Grigalashvili		Village Khevi, Kharagauli Municipality	Adjacent to campsite 1	Stress due to Dust, noise due to construction activities	She is an asthmatic and having allergy from dust demanding to shift her in Surami by demanding from	Contractor to construct the cemented floor for the site and advised to use temporary noise barrier /	Contractor started constructing cemented floor for the batching plant

								contractor to take her house at rent with the rate \$3000/ month	fencing of the site to control noise	
--	--	--	--	--	--	--	--	--	---	--

### Annex 5: Attendance Lists for Environment & HS Trainings

E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA



Induction Attendance Log  
HSE INDUCTION FORM


Date:	28 10/3/2019	Title of Training	Environmental Induction Training	
Total Class Hours	2 Hours	Instructor(s)	Levan Inashvili	
Area		Location	Village Khunevi, Kharagauli Mun.	

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) Wang Fei				Hunan
2) Yi kai dian				Hunan
3) Huang Pa Xiao				Hunan
4) Yang Jie				Hunan
5) Wang Qiang				Hunan
6) zhou hang				Hunan
7) Liu Ye Xin				Hunan
8) Luozhi zhen				Hunan
9) Alexandre Ch. toudze		HSE SUPV.		Hunan
10) Li Tao				

Health, Safety, and Environmental

E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA



Induction Attendance Log  
HSE INDUCTION FORM

Date:	29 10/3/2019	Title of Training	Environmental Induction Training	
Total Class Hours	2 Hours	Instructor(s)	Levan Inashvili	
Area		Location	Village Khunevi, Kharagauli Mun.	

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) Luozhi				Hunan
2) wang zhimei				Hunan
3) Liu heng				Hunan
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	28/05/2019	Title of Training	HSE induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze, Nino jashashvili
Area	House #5	Location	Khevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) Yi Guan jun				HUNAN
2) Tang sheng jun				—
3) Luo De en				—
4) Liu Fang sheng				—
5) Zhang Ming liang				—
6) yi zhi yang				—
7)				
8)				
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	22/05/2019	Title of Training	HSE induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze, Nino jashashvili
Area	Laboratory	Location	Khevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) Liu Jie				HUNAN
2) Liu Ming xian				—
3) Li Hong ding liwen				—
4) Li Hong li				—
5) Li Gui Fang				—
6) Wang Ming yue				—
7) Zeng li ming				—
8) Gong Yi				—
9) Li Xiaoyuan				—
10) He Junhui				—

Health, Safety, and Environmental





E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	21 105/2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandra Chitadze, Giorgi Nino Jashvili G.J
Area	House N5	Location	Khevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) 戴自然 Dai Ziran				
2) 刘玉龙 Liu yu long				
3) 易志文 yi zhi wen				
4) 谷建群 Gu Jian Qun				
5) Zhang Wanglin				
6) chenxiaojia				
7) Peng Liqiang				
8) Zhao Jianchu				
9) He Shan Hong				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	21 105/2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandra Chitadze, Giorgi Nino Jashvili G.J
Area	House N5	Location	Khevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) Fan Chunlin				
2) 黄应帆 Huang Yingfan				
3) 苏建华 Su Jianhua				
4) 周再强 ZHOU ZAI QIANG				
5) 王波琪 Wang boqi				
6)				
7)				
8)				
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUTE EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	24 / 04 / 2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze <i>A. Chitadze</i>
Area	Khunevi	Location	Office

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) 李泉军 Li Quanjun	<i>李泉军</i>			HNRB
2) 彭小春 Peng Xiaochun	<i>彭小春</i>			HNRB
3) 胡志建 Hu Zhijian	<i>胡志建</i>			HNRB
4) 郭俊 Guo Jun	<i>郭俊</i>			HNRB
5) 杨长文 Yang Changwen	<i>杨长文</i>			HNRB
6) 刘理国 Liu Li Guo	<i>刘理国</i>			HNRB
7) 刘志文 Liu Zhiwen	<i>刘志文</i>			HNRB
8)				
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUTE EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	12 / 04 / 2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze <i>A. Chitadze</i>
Area	Khunevi	Location	Office

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) ԿՅՅԵ ԶԻՆՈՒՅԻՆԻ	<i>Զ. Զինյան</i>	ՑՈՒՆԵՆԻՍ		HUNAN
2) ԶԻՆՈՒՅԻՆԻ	<i>Զինյան</i>	ՑՈՒՆԵՆԻՍ		HUNAN
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	29/03/2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Ch. toudze
Area	Office	Location	Khvevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) [Handwritten Name]	[Signature]	[Handwritten Job Title]		Hunan
2) [Handwritten Name]	[Signature]	[Handwritten Job Title]		Hunan
3) [Handwritten Name]	[Signature]	[Handwritten Job Title]		HUMAN
4) [Handwritten Name]	[Signature]	[Handwritten Job Title]		HUMAN
5)				
6)				
7)				
8)				
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	29/03/2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Ch. toudze
Area	Office W2	Location	khvevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) [Handwritten Name]	[Signature]	[Handwritten Job Title]		
2) [Handwritten Name]	[Signature]	[Handwritten Job Title]		
3) [Handwritten Name]	[Signature]	[Handwritten Job Title]		
4) [Handwritten Name]	[Signature]	[Handwritten Job Title]		
5)				
6)				
7)				
8)				
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	25 /03/2019	Title of Training	Flagman Training
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze <i>J. Kiyos</i>
Area	Off. ce	Location	Khunevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) <i>გაბრიელ აბრამიძე</i>	<i>გაბრიელ აბრამიძე</i>	<i>გაბრიელ აბრამიძე</i>		HVRD
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	20 /03/2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze <i>J. Kiyos</i>
Area	Subcontractor office	Location	Borisi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) <i>ლევან ბერიძე</i>	<i>ლევან ბერიძე</i>	<i>ბერიძე ლევან</i>		
2) <i>მამია ბერიძე</i>	<i>მამია ბერიძე</i>	<i>ბერიძე მამია</i>		
3) <i>გიორგი ბერიძე</i>	<i>გიორგი ბერიძე</i>	<i>ბერიძე გიორგი</i>		
4) <i>მამია ბერიძე - ხ.ბ.ბ.</i>	<i>მამია ბერიძე</i>	<i>ბერიძე მამია</i>		
5) <i>მამია ბერიძე</i>	<i>მამია ბერიძე</i>	<i>ბერიძე მამია</i>		
6) <i>მამია ბერიძე</i>	<i>მამია ბერიძე</i>	<i>ბერიძე მამია</i>		
7) <i>მამია ბერიძე</i>	<i>მამია ბერიძე</i>	<i>ბერიძე მამია</i>		
8) <i>მამია ბერიძე</i>	<i>მამია ბერიძე</i>	<i>ბერიძე მამია</i>		
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	15 /03/2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze <i>s. Lopydz</i>
Area	Office	Location	Khunevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) <i>გვანა მალაქაძე</i>	<i>[Signature]</i>	<i>შემსრულებელი</i>		HNRB
2) <i>მარტინიანი ვახტანგ</i>	<i>[Signature]</i>	<i>შემსრულებელი</i>		—
3) <i>ქადაგიანი ზაზუნა</i>	<i>[Signature]</i>	<i>შემსრულებელი</i>		—
4) <i>ბარბაქაძე მანუჩი</i>	<i>[Signature]</i>	<i>შემსრულებელი</i>		—
5) <i>გუგუშვილი გ. ვახტანგ</i>	<i>[Signature]</i>	<i>შემსრულებელი</i>		—
6) <i>სამა გვანაძე</i>	<i>[Signature]</i>	<i>შემსრულებელი</i>		—
7) <i>ბერიძე ვახტანგ</i>	<i>[Signature]</i>	<i>შემსრულებელი</i>		—
8) <i>ბერიძე ვახტანგ</i>	<i>[Signature]</i>	<i>შემსრულებელი</i>		—
9)				
10)				

Health, Safety, and Environmental



E60 HIGHWAY ROUT EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	14 /03/2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze <i>s. Lopydz</i>
Area	Office	Location	Khunevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) Liu Yexin	<i>[Signature]</i>			HNRB
2) Jiang wang	<i>[Signature]</i>			—
3) Tang Qi hui	<i>[Signature]</i>			—
4) Zhou Heng	<i>[Signature]</i>			—
5) Huang Pu xin	<i>[Signature]</i>			—
6) Liu Yuan gang	<i>[Signature]</i>			—
7) wang qiang	<i>[Signature]</i>			—
8) Li Tao	<i>[Signature]</i>			—
9) Gizo Kakavadze	<i>[Signature]</i>			—
10) Long Qi jun	<i>[Signature]</i>			—

Health, Safety, and Environmental



E60 HIGHWAY ROUTE EXTENSION PROJECT F2 SECTION KHEVI-UBISA

Induction Attendance Log  
HSE INDUCTION FORM

Date:	14/03/2019	Title of Training	HSE Induction
Total Class Hours	2 Hours	Instructor(s)	Aleksandre Chitadze <i>Alexandre</i>
Area	Office	Location	Khunevi

Name & Surname	Signature	Job Title	Personnel No. (ID or badge number)	COMPANY
1) Yu Wei hua	<i>俞伟华</i>			HWRB
2) Wang zhi mei	<i>王智梅</i>			—
3) Jiang wang	<i>江望</i>			—
4) Tian Yuan	<i>田元</i>			—
5) Ma wei qiang	<i>马伟强</i>			—
6) Huang Haojian	<i>黄昊健</i>			—
7) Ye You song	<i>叶佑松</i>			—
8) Yi kai nian	<i>易开年</i>			—
9) Luo zhi zhan	<i>罗志展</i>			—
10) Yang Ling jie	<i>杨凌杰</i>			—