

Biannual Environmental Monitoring Report

Loan Number: 3063 -GEO

Project Number: 42414-043

Reporting period: **March-June, 2017**

GEORGIA: SUSTAINABLE URBAN TRANSPORT INVESTMENT PROGRAM, Tranche 3

(Financed by the Asian Development Bank)

Prepared by: Nino Nadashvili, Local Environmental Consultant for ADB projects
Environmental and Resettlement Unit, Municipal Development Fund (MDF)
Tbilisi, Georgia

Endorsed by: Giga Gvelesiani, Head of Environmental and Resettlement Unit
Municipal Development Fund (MDF)
Tbilisi, Georgia

July, 2017

Biannual Environmental Monitoring Report

ABBREVIATIONS

ADB	Asian Development Bank
EA	Executing Agency
EARF	Environmental Assessment and Review Framework
EIA	Environmental Impact Assessment
EIP	Environmental Impact Permit
EMP	Environmental Management Plan
EPSM	Engineering Procurement and Construction Management
GoG	Government of Georgia
SUTIP	Georgian Sustainable Urban Transport Investment Program
IA	Implementing Agency
IEE	Initial Environmental Examination
MDF	Municipal Development Fund of Georgia
MFF	Multi-tranche Financing Facility
MoENRP	Ministry of Environmental and Natural Resources Protection
MoRDI	Ministry of Regional Development & Infrastructure
SSEMP	Site-Specific Environmental Management Plan

Biannual Environmental Monitoring Report

TABLE OF CONTENTS

1. PART I. INTRODUCTION.....	4
1.1 Preliminary information	4
1.2 Construction activities and project progress during the reporting period	8
1.3 Changes in project organization and environmental management team	10
1.4 Relationships with contractors, owner, lender, etc	11
2. PART II. ENVIRONMENTAL MONITORING.....	13
3. PART III: ENVIRONMENTAL MANAGEMENT.....	22
3.1 Site inspections and audits	23
3.3 .Consultation and Complaints.....	28
3.4 Actions taken to reflect the findings of ADB mission during reporting period.....	31
3.5 . Action plan for the next period	31
4. ANNEXES.....	33
4.1 Annex 1: Monitoring Data	34
4.2 Annex 2: Implementation report on the environmental impact assessment (EIA)/initial environmental examination (IEE)/Site Specific Environmental Management Plan (SEMP) mitigation requirements	37
4.3 Annex 3: Photos	50

Biannual Environmental Monitoring Report

1. PART I. INTRODUCTION

1.1 Preliminary information

Program background

1. Upgrading and improvement of local transport and transport-related infrastructure plays a significant role in the development of Georgia's urban infrastructure. To this effect, a number of important activities have been implemented and financed from the budget of Georgia and from other sources. Recently several significant programs, financed through state budget, loans and grants, have been implemented with this regard.
2. On December 19, 2013 - Sustainable Urban Transport Investment Program Tranche 3 Loan and Project agreements were signed between Georgia and Asian Development Bank. Under Tranche 3, ADB has agreed to lend to the Borrower from ADB's ordinary capital resources an amount of seventy three million Dollars (\$73 million). Tranche 3 is scheduled for completion by 30 June 2018, with a loan closing on 31 December 2018.
3. The program will provide efficient, reliable and affordable urban transport infrastructure and services, thereby increasing economic growth potential and competitiveness of urban communities, improving livelihoods of over 1.5 million people (approx. 35% of Georgian population). The project will also: (I) improve urban, environment and communities' access to economic opportunities and to public and social services; (II) promote efficient and sustainable urban transportation; and (III) generate income and employment opportunities.
4. The environment classification for Tranche 3 is Environmental Category B, as the impacts under subprojects SUTIP 3 are site specific and can be addressed through mitigation measures. For environmental category B, Initial Environmental Examination (IEE) was required. The environmental categorization of sub-projects was conducted by using ADB's Safeguard Policy Statement (2009).

Program Area

5. Sustainable Urban Transport Investment Program – Tranche 3 (SUTIP T3) includes:
 - (a) Construction of an approximately 6.8 kilometers 4-lane urban road link between the cities of Rustavi and Tbilisi, including a 2 kilometers urban boulevard and recreational areas;
 - (b) Construction of an approximately 1.2 kilometers coastal protection structure in the city of Anaklia (Phase II); and
 - (c) Project implementation support through financial audit and independent safeguards monitoring.

Tbilisi-Rustavi urban link (Section 2) CW Project – overview

6. The project envisages Modernization of Tbilisi-Rustavi portion of the Tbilisi-Red Bridge (Azerbaijani border) automobile road. The design road links the capital of Georgia with the major industrial and administrative center Rustavi and the district center Gardabani. Designing and constructing of other portions of the road will enable the citizens to travel and commodities to be trafficked on comfortable and modern highway to the capital of Azerbaijan, Baku. It also will make more accessible Tbilisi and the Black sea ports of Georgia for population of

Biannual Environmental Monitoring Report

Azerbaijan. Apart from the abovementioned the population of Rustavi and Gardabani are the priority road customers. The mentioned portion of the design road is over-trafficked, the AADT being about 15,100 vehicles per day, when the road capacity is just 7,000. The latter determined priority of modernization of the Tbilisi-Rustavi road to the level of I category road with 4 traffic lanes and design speed 120 km/h (Decision had been made later to construct on Section 2 urban road with reduced design speed down to 80 km/h). Total length of the urban link is 17.4km.

7. EPCM consultant JV “Dohwa Engineering ltd” (Korea) and “Transproject ltd” (Georgia) prepared and provided the final draft detailed design to MDF in February, 2014.
8. The contract for Tbilisi- Rustavi urban link (Section 2) Construction Works was signed with Seza Insaat San. Ve Tic. Ltd. STI (Turkey) on December 12, 2016. The contract amount is GEL118,988,906.6 (about \$44,9 million).
9. Taking into account that 10 apartment buildings located close to the planned road were in a poor condition decision has been made to tender Tbilisi-Rustavi Urban Road Link section 2 project upon finalization of the detailed design which would reflect the results and recommendations of the structural integrity survey of 10 apartment buildings, noise and vibration modeling, finalization of IEE and LARP agreed with ADB.
10. Although these buildings are outside of the right-of-way of Section 2 and are not directly physically impacted by the project (except one), concerns have been raised by the residents of the buildings regarding potential noise and adverse structural effects of vibrations during construction. The IEE required to conduct a technical study to address these concerns.
11. Consulting company for conducting of the Structural Integrity Study has been selected on December 19, 2014. The Contract was signed with Nord Est Progetti (Italy). Individual expert for Review of the Investigation of Structural Integrity of, and Impact of Vibration and Noise on Buildings and for Consulting MDF during the Implementation of the Investigation study was also recruited. MDF was working closely with the consulting company NEP, EPCM consultant “Dohwa” and Individual consultant in order to conduct planned activities without delay.
12. The Consulting Company conducted the survey and submitted relevant reports in Q2 and Q3, 2015. On the bases of the survey performed (which includes modeling) Consultant gave following recommendations: one building must be demolished; vibration produced during construction works and/or exploitation will not cause the risk of collapse or damage of other 9 buildings; voluntary additions to the buildings and building N6 should be reinforced; Mitigation measures are required to reduce the expected noise levels. The conformance with the threshold of permissive noise level can be achieved through designing proper type of noise barrier wall.
13. In addition, a rigorous and extensive monitoring system should be implemented during the construction phase and will extend into the operation phase of the road, to provide added comfort and assurance of the absence of adverse impact on the stability of the buildings located along the urban road. Contractor will work according to strict, pre-defined procedures and will use only modern construction equipment. MDF ensured that relevant provisions are included in the bidding document, fully consistent with the recommendations given in the report.

Biannual Environmental Monitoring Report

14. On the bases of the recommendations provided by Nord Est Progetti, MDF took decision to request the Consultant to provide additional survey on following: study, analysis and documenting the expert conclusion on the impact of vibration, air pollution and noise to the GMP production; general design of sound barrier; engineering design for building N6 and voluntary additions. The final report on additional studies was submitted to MDF in July 2015. The recommendations and results of the modeling have been included in the detailed design.
15. GMP pharmaceuticals complaint was also taken into account and as a result of amendment, bridge of frontage road (located close to GMP) was removed and one additional foot-bridge was inserted into design.
16. The selected Contractor should implement relevant monitoring system not only during the construction process, but monitoring will be extended in the exploitation phase of the road. In addition to above, MDF initiated changes into DD that were based on the lessons learned from the implementation of the Tbilisi-Rustavi road modernization contract for Section 1 and 3. The design revision constituted carrying out of respective changes in LARP and IEE.
17. Final version of the Detailed Design was re-submitted by the Consultant on November 27, 2015 reflecting all comments. The tender document was prepared by Consultant Company and agreed with MDF. The latest version of DD was reviewed by International Road Consultant. In his opinion design package appears to meet international and ADB requirements for procurement purposes and it could be advertised for civil works tender.
18. The final version of the design documentation was submitted by MDF to ADB on 31 December 2015. The civil works tender was announced on 3 February, 2016, with the deadline of 21 March, 2016. Although, as a result of request from bidders the bids submission deadline was extended until 1 April, 2016. 9 participants submitted bids. Evaluation of Technical Bids were finalized and the Report was sent to ADB on 20 May, 2016. According to Technical Bids Evaluation Report (TBER) all 9 Bidders were found technically substantially responsive. On 8 August, 2016 MDF has received ADB's no-objection on TBER, according to which 7 Bidders were approved to be technically responsive and subject to further evaluation. Therefore, on the same day (8 August, 2016) MDF has issued invitations for Price Bid Opening to 7 responsive Bidders. The evaluation was completed and Price Bids Evaluation Report (PBER) was submitted to ADB on 30 August, 2016, according to which the recommendation was given to the first lowest evaluated Bidder Joint Venture of Mehmet Gunesh Inshaat Yat. San. Ve Ticaret A.S./Korpu-Bina-Tikinti LLC (Turkey/Azerbaijan). The ADB's no-objection was received on 7 October, 2016 and on the same day MDF has issued Letter of Acceptance. According to procedures the successful bidder had to provide signed Contract Agreement and Performance Security within 28 days after receiving the notification, i.e. on or before 4 November, 2016. Although, the successful Bidder has failed to furnish the Performance Security and to sign the Contract Agreement. On 4 November, 2016 the Bidder has informed MDF that they refused to sign the mentioned Contract. To that end, on 7 November MDF has sent official letter to Mugan Bank – Azerbaijan, requiring forfeiture of Bid Security amount according to terms and conditions Guarantee. Mugan Bank requested MDF to split the amount in to three parts and to pay in three installments. During reporting period agreement was not reached and no amount was received.
19. Coming from the aforementioned, the MDF has moved to the next lowest evaluated Bidder and resend the PBER to ADB on 9 November, 2016, with the recommendation for Contract Award to SEZA Inshaat (Turkey). On 25 November, 2016 ADB approved the recommendation and issued its NOB. On the same day the MDF has issued the Letter of Acceptance to SEZA Inshaat, as a result of which the successful Bidder has submitted the Performance Security

Biannual Environmental Monitoring Report

and signed Contract Agreement in due period. Therefore, the Contract was signed on 12 December, 2016 with the total Contract Price of 118,988,906.69 GEL. Advance Payment in the amount of 20% of the Accepted Contract Price was made on 30 December, 2016.

20. Commencement date for beginning of the mobilization and then the civil works, was defined by SC - Dohwa Engineering Co.LTd, as February, 28, 2017. Only demolition activities have been started in April. Implementation of other civil works have been started from May.

Anaklia Coastal Improvement (phase 2) Project - overview

21. Anaklia is a small town and seaside resort in western Georgia. It is located in the Samegrelo-Zemo Svaneti region, at the place where the Enguri River flows into the Black Sea, near the administrative border with Abkhazia. The project aims at Anaklia shoreline rehabilitation, restoration of the full profile of beaches to the possible limits (which is necessary for wave breaking and suppression of its power and assigns to the beach a function of bank protecting structure), selection of the most optimum types and design of hydro-technical coast protecting structures. Infrastructure improvement will support infrastructure investments to rehabilitate, improve and expand the beach of Anaklia and will benefit accrue principally from the protection of land and infrastructure from erosion and damage, the avoidance of some other costs and increasing number of tourists. For the interventions, benefits arise from the protection of (i) rural land, (ii) houses (iii) roads and other infrastructure. Coast protection measures need to be taken to protect the unique place and landscape. The design of approximately 4 kilometers of coastal line will create a new and attractive tourist destination on the Black Sea Coast, able to be the engine of the development of the region of Zugdidi, Ganmukhuri and Anaklia.
22. Project considers construction of 4 structures of underwater breakwaters (composed with 5t tetrapods) in the sea along the coastal line in around 200 m far from the beach and nourishment of the beach line with sand.
23. The contractor for the Phase 2 was the same as for the Anaklia Coastal Improvement phase 1 - Modern Business Group LLC (Azerbaijan). Construction started on 18th February 2015. Project considered construction of 4 structures of underwater breakwaters (composed with 5t tetrapods) in the sea along the coastal line in around 200 m far from the beach and nourishment of the beach line with sand. According to the Contractor's schedule (agreed with MDF), construction started with N10 underwater breakwater. The nourishment of the 300 m beach line is completed. This section was priority for the government to place the sand because of children's camp located in the same area and having high intensity of beach line erosion. N10 underwater breakwater was completed in September, 2015. First observations reported by Engineer Dohwa show that protection provided by the breakwater is visible, particularly in case of storm.
24. Official completion time for Phase 2 was determined 18 November, 2015. Contractor, Engineer and MDF agreed to extend the civil works contract and signed Contract Amendment for time extension till 30 April, 2016.
25. The Georgian government came to a decision to initiate construction of a deep sea port in Anaklia. In March 2016 the Ministry of Economy and Sustainable Development of Georgia provided MDF with the coordinates of the deep sea port, which demonstrated that the port

Biannual Environmental Monitoring Report

was overlapping three breakwaters out of four (breakwaters N 7, 8 and 9). As a result MDF took decision to remove three breakwaters from the scope of work of the present contract. MDF Supervisory Board in April 2016 decided to cancel construction works for the proposed underwater breakwaters from the Contract through contract modification.

26. Phase II finally includes construction of only N10 underwater breakwater and placing of sand on the beach behind the N10 underwater breakwater (Approximately in front of Children's camp). After reducing the volumes of works the final Contract Price decreased from GEL 12,252,937.48 to GEL 5,264,147.71. The works were completed on 30 April, 2016 and Taking-Over Certificate was signed on 11 August, 2016. Following the Decree 24-05 dated 16 September 2016 on Anaklia Coastal Protection project (Phase II) issued by Public Law Legal Entity Technical and Construction and Supervision Agency (under the Ministry of Economy and Sustainable Development of Georgia) the constructed facility (underwater breakwater N10) was taken into exploitation.
27. MDF and Engineer agreed to shift Item for demobilization works and removing of sheet piles and jetty from Phase II work scope to the Phase I work scope.
28. The contractor for the Phase 2 was the same as for the Anaklia Coastal Improvement phase 1 - Modern Business Group LLC (Azerbaijan). Civil works contract was signed with Modern Business Group LLC (Azerbaijan) on September 26, 2014 with an amount of GEL 12,252,937.48 (approximately USD 7.0 million). The construction works started on February 18, 2015. Official completion time for Phase 2 was determined 18 November, 2015. Significant delays have been experienced in the implementation of the project. Contractor, Engineer and MDF agreed to extend the civil works contract and signed Contract Amendment for time extension till 30 April, 2016.
29. In April 2016 MDF's Supervisory Board decided **to cancel construction works** for the proposed underwater breakwaters from the Contract through contract modification.

1.2 Construction activities and project progress during the reporting period

Anaklia Coastal improvement (phase 2) Project - Civil works - N/A

Tbilisi-Rustavi urban link (Section 2):

30. Construction Contractor of the project, as it was mentioned above, is SEZA Inshaat (Turkey). Commencement date defined by SC - Dohwa Engineering Co.LTd, is February, 28, 2017.
31. MDF has granted limited site access to the Contractor at sections to be handed over under Phase I. In particular, access was given for KM 4+000-5+100 and KM 8+600-10+750. MDF required from the SC to ensure that Contractor has not carried out any construction activities besides survey works, until obtaining the Engineers "No Objection".
32. During the reporting period, the following construction activities have been carried out under the project, at permissible sections:

Demolishing of the existing buildings

Biannual Environmental Monitoring Report

33. The progress is made on demolishing of existing buildings in Part 1 and Part 3 of the road section II. Starting from 1st of April until 27th of June in Part 1 (PK 4+000 - PK 4+900) and in Part 3 (PK 8+500 - PK 10+000) of the road section II 22,450.28 m² (29,40% of total demolishing work in Part 1) and 19028.29 m² (33,23% of total demolishing work in Part 3) volumes are demolished respectively. The demolishing of existing buildings in project area is still ongoing.

Relocation of existing gas line

34. From 5th of May until 27th of June in Part 3 (PK 8+000 - PK 10+000) of the road section II 2000 LM existing gas line within the project area was relocated. The relocation works are still ongoing. (45,0% of total gas line relocation work).

Demolition of existing electrical pylons and high voltage cables

35. Process is going on demolishing of existing electrical pylons and high voltage cables. Starting from 20th of June until 27th of June in Part 1 (PK 4+600 – PK 4+630) of the road section II 2 pcs of electrical pylons were demolished (0,50% of total demolishing work).

Cutting of trees and site clearance

36. The cutting of trees and site clearance process is going according to permits that were issued from relevant authorities. In Part 1 (PK 4+200 – PK 4+620) of the road section II starting from 1st of April until 27th of June 516 pcs of trees were cut (10,0% of total tree cutting work was done in Part 1) and in Part 3 (PK 8+600 – PK 10+700) of the road section II starting from 10th of April until 27th of June 733 pcs of trees were cut (1,0% of total tree cutting work was done in Part 3).. The cutting of trees and site clearance process in project area is still ongoing.

Excavation of unsuitable material at Krtsanisi Park area

37. Excavation of unsuitable material at Krtsanisi Park area is started on 17th of June and it is still underway. In Part 3 (PK 9+800 – PK 10+000) of the road section II 42,844.22 m³ of material was excavated. (12,0% of total excavation work in Krtsanisi Park area).

Casting of bored piles for the bridge at PK 9+824 (RHS)

38. Casting works started on 17th of June in Part 3 (PK 9+800 – PK 9+833) and until 27th of June 14 Nos volume were made. The process is ongoing (25,0% of total casting work).

Excavation for retaining wall at km 4+620

39. Excavation works for retaining wall started on 18th June in Part 1 (PK 4+620 – PK 4+700) and until 27th of June 6,528-m³ material was excavated. Excavation works is underway (13,0% of total excavation work to be done for retaining wall).

Biannual Environmental Monitoring Report

Concreting of retaining wall at km 4+620

40. Concreting of retaining wall started on 17th June in Part 1 (PK 4+640 – PK 4+700) and until 27th of June 520 m³ concrete was used and works are proceeding according to construction plan (55,0% of concreting work for retaining wall).]

Excavation for tunnel at km 4+980

41. Excavation for tunnel is started on 22nd and In Part 1 (PK 4+960 – PK 4+990) of the road section II 500 m³ of material was excavated (9,0% of total excavation work for tunnel).

Removal of topsoil

42. Removal of topsoil is started on 5th of May and it is still underway in Part 1 (PK 8+000 – PK 10+000) (75,0% of total top soil removal work was done).

1.3 Changes in project organization and environmental management team

43. The MDF is the projects' executing, implementing and disbursing agency. MDF has overall responsibility for the projects' management - including environmental, planning and supervision. New Executive Director of MDF Galaktion Buadze was assigned on November 30, 2016 by the Georgian Prime Minister's Decree.
44. MDF is responsible for general implementation of all safeguards tasks and guarantee that potential adverse environmental impacts arising from the Projects are minimized by implementing mitigation measures presented in the Initial Environmental Examination (IEE) or SSEMP, as applicable.
45. Management of safeguards issues is carried out by the MDF through Environmental and Resettlement Unit, established in October 2014. From that time, number of Environmental and Resettlement team members has increased from 6 to 13 and currently consists of: Head of Unit, 4 environmental safeguards specialists, one social and gender specialist, 6 resettlement specialists. There are also two ADB's individual consultants – one on environmental safeguards and one on resettlement issues, who are the members of Environmental and Resettlement Unit. Until October 2014, Environmental and resettlement safeguards team was consisting of 3 environmental safeguards and 2 resettlement specialists, one of which was the ADB's national consultant on resettlement issues. Environmental and Social Safeguards team had a Team Leader who was an advisor to Executive Director of MDF on environmental and social safeguards issues.
46. The Environmental and Resettlement Unit is involved in addressing of environmental and social safeguard issues throughout the entire projects' cycles. The Environmental and Social Specialists of the MDF, are responsible for management of the environmental and social aspects associated with development of all donor funded projects for which MDF is the responsible Executing Agency (EA). Local Environmental Consultant –Nino Nadashvili, was recruited in September 2015, and designated to supervise ADB projects, review the

Biannual Environmental Monitoring Report

IEEs/EIAs, EMPs, and SSEMPs of projects and carry out supervision of the construction performance based on approved EMPs, EIAs, and environmental standards in accordance with ADB “Safeguard Policy Statement” (2009) requirements’ and acting Georgian Legislation.

1.4 Relationships with contractors, owner, lender, etc

Tbilisi-Rustavi urban link (Section 2)

47. Construction Contractor is ‘Seza Insaat- Turkish Company. EPCM consultant JV “Dohwa Engineering ltd” (Korea).
48. The main institutions involved in IEEs/EMPs/SSEMPs implementation and monitoring, are the executing agency (EA) - MDF, the Supervision Consultant (SC), the Construction Contractor and to a lesser extent the Ministry of Environmental and Natural Resources Protection and Municipal Authorities. EA (MDF) and SC are responsible for ensuring monitoring of the project implementation at the construction stage. Ministry of Environmental and Natural Resources Protection has the authority for periodic audits but should not be considered as a party responsible for monitoring according to the SSEMP.
49. As it was mentioned above, MDF is responsible for general implementation of all safeguards tasks. EA (MDF) and SC (DOHWA) are responsible for ensuring monitoring of the project implementation at the construction stage, while Tbilisi City Hall and Road Department of the Ministry of Infrastructure and Regional Development at the road operation stage.
50. MDF ensures availability of all environmental information and facilitates environmental supervision of the project. The MDF’s local environmental specialist’s responsibilities in respect of implementation of the IEE/SSEMP, are to: ensure that all relevant IEE/SSEMP requirements (including environmental designs and mitigation measures) are duly incorporated into the project bidding documents; Assist Contractors to obtain necessary permits and/or clearance, as required, from any relevant government agencies (NEA, etc); Ensure that all necessary regulatory clearances are obtained before commencing any civil work on the project; Ensure, that contractors have access to the EMP and IEE report and understand their responsibilities to mitigate environmental problems associated with their construction activities and facilitate training of their staff in implementation of the EMP; Approve the Site-Specific Environmental Management Plan (SEMP) prepared by the Contractor before he takes possession of construction site; Time-to time monitor the contractor’s implementation of the SEMP in accordance with the environmental monitoring plan by conducting site monitoring visits.
51. The MDF through its Local Environmental Consultant-Nino Nadashvili, reports to the ADB in every 6 months on the status of environmental compliance of construction works by preparing semi-annual Environmental Monitoring Reports. In case unpredicted environmental impacts occur during the project implementation, prepares and implement as necessary an environmental emergency program in consultation with relevant government agencies and ADB.
52. The supervisor company (SC) of works commissioned by MDF is responsible to establish strong field presence in the Project area and keep a close eye on the course of works. Construction Supervision Company is responsible for supervision of all environmental issues during project implementation. Along with ensuring consistency with the design and ensuring

Biannual Environmental Monitoring Report

quality of works, the supervisor is mandated to track implementation of EMP/SSEMP by the Construction Contractor and reveal any deviations from the prescribed actions.

53. Environmental issues at Supervision Company DOHWA are managed by national environmental specialist Paata Chankotadze, who is responsible for:
 - Reviewing and approval of environmental documentation, submitted by contractor;
 - Preparing quarterly progress reports;
 - Monitoring of construction activities, issuing NCNs;
 - Relationship with contractor and employer;
 - Support of contractor in obtaining of environmental permits and licenses;
 - Correspondence with Employer, contractor and local authorities.
54. Environmental specialist of technical supervisor should assess how accurate is the factual information provided in the contractor's reports, fill any gaps identified in them, and evaluate adequacy of mitigation measures applied by contractor. Technical supervisor must highlight any cases of incompliance with EMP/SSEMPs, inform on any acute issues brought up by contractor or revealed by supervisor himself, and propose corrective actions.
55. During implementation of construction activities Engineer's environmental specialist time to time conducts environmental meetings and site inspections. In case of observation of significant non-compliances Engineer fills non-conformity report forms and sends them officially to Contractor. Most important issues, which cannot be managed by HSE department, are subject of review during weekly meetings. In case of emergency, contractor officially asks support of Employer and Employer, in the range of its competence, refers to relevant ministries and local authorities.
56. Thus, non-compliance notice has to be issued to the contractor if the SC requires action to be taken. The contractor is required to prepare a corrective action plan which needs to be implemented by a date agreed with the SC. Non-compliance should be ranked according to the established criteria.
57. SC company prepares quarterly progress reports, which cover the implementation of the SSEMP, discrepancies from the SSEMP and list all HSE relevant incidents and accidents that occur during the implementation; Submits periodic reports based on the monitoring data and laboratory analysis.
58. CC is obliged to follow EMP/SSEMP good construction practice during construction activities. In order to meet this obligation, Contractor has established environmental management team and procedures. The Contractor has contracted environmental consultancy company "GAMMA Consulting", responsible for environmental monitoring of construction activities and development of thematic reports required under EIA, IEE and ADB guidelines and Georgian legislation. 'GAMMA Consulting' will monitor construction activities during whole period of project implementation.
59. Construction Contractor (SEZA) has also appointed a full time Health, Safety and Environmental Manager (HS&EM) – Vladimer Melia, which is a senior member of the construction management team based on site, for the duration of the contract. The construction contractor's Environmental team responsible for implementation of EMP/SSEMP by daily environmental monitoring and reporting.

Biannual Environmental Monitoring Report

60. Key responsibilities of the environmental team of the CC are preparation of the Site-Specific Environmental Management Plan (SEMP) for approval by the Employer (EA), prior to the Contractors taking possession of the construction site; Ensure that the SSEMP is implemented effectively throughout the construction period; Carry out the monitoring and mitigation measures set forth in the IEE/EMP/SSEMP; Establish an operational system for managing environmental impacts; Allocate the budget required to ensure that such measures are carried out. Construction contractor is responsible to prepare monthly progress reports on SSEMP implementation, which should contain information on the main types of activities carried out during the reporting period, status of any clearances/permits/licenses which are required for carrying out such activities, mitigation measures applied, and any environmental issues that have emerged in relations with suppliers, local authorities, affected communities, etc.
61. The CC submits reports of the carrying out of such measures to the employer on a monthly basis; Coordinating community relations issues through acting as the Contractor's community relations focal point – Vladimir Melia (proactive community consultation, complaints investigation and grievance resolution), establishing and maintaining site records of:
- Weekly site inspections using check-lists based on SEMP;
 - Environmental accidents/incidents including resolution activities;
 - Environmental monitoring data;
 - Non-compliance notifications issued by the SC;
 - Corrective action plans issued to the SC in response to non-compliance notices;
 - Community relations activities including maintaining complaints register/complaints log-book ;
 - Monitoring reports;
 - Routine reporting of SEMP compliance and community liaison activities;
 - Ad hoc reporting to the Employer's Engineer of environmental incidents/spillages including actions taken to resolve issues.
62. Information on environmental issues, arising from the construction activities should be immediately brought to the attention of MDF's national environmental Consultant and safeguards team by the environmental specialists of construction and Supervision Companies', in order to coordinate efforts and ensure immediate mitigation of impacts, protect the environment and safeguard the health and welfare of the local communities.
63. However, Progress reports of implemented activities, were presented by CC and SC with significant delays, were not corresponding above mentioned requirements so far. Information provided at reports were general and not systematized. Reports did not include details on supervision activities and not summarize the results of weekly and/or monthly monitoring.

2 PART II. ENVIRONMENTAL MONITORING

64. An environmental assessment and review framework (EARF) for SUTIP 3 was approved by the government on 16 April 2010. EARF was updated in April, 2015. The environment classification for Tranche 3 is Environmental Category B. The subprojects under SUTIP 3 were classified as category B as the subprojects impacts are site specific and can be addressed through mitigation measures. Initial Environmental Examination (IEE) was

Biannual Environmental Monitoring Report

required. The environmental categorization of sub-projects was conducted by using ADB's Safeguard Policy Statement (2009).

65. Environmental Assessment and Review Framework (EARF) is stated that an IEE/EMP will be a part of the overall project monitoring and supervision and will be implemented by the Contractor with oversight from the Supervision Consultant (the Engineer) and MDF. Initial Environmental Examination report was prepared for the project, which was approved by ADB in December, 2015.
66. According to Georgian Legislation, preparation of Environmental Impact Assessment (EIA) was required for the project also, in order to obtain the construction permit. Georgian version of the draft Environmental documentation was prepared and submitted to MOEPNR for consideration in December, 2016. Ecological Expertise N5 was issued on January 17, 2017, which was shared with all relevant authorities of MDF and CC and SC top management and environmental staff.
67. IEE/EMP is an integral part of construction contracts. MDF requires the Construction and its Supervision Companies to implement construction activities in accordance with the environmental management plan, according to which SSEMP was developed. Safeguards issues are monitored by the MDF's environmental and resettlement unit, with the support of the consulting services firms and the consultants recruited for the implementation of the safeguards plans.
68. Based on the EMP/SSEMP requirements, monitoring measures of projects includes construction site supervision, verification of permits, monitoring of compliance of the contractors' performance and specific monitoring of environmental impacts like noise, dust, soil contamination, landscape structure, construction waste, radiation, flora and fauna, water pollution, air emissions and etc. conducted by Contractor's and Engineer's environmental management specialists.
69. The objects of monitoring, the sampling points, techniques, frequency of measurements and, targets, as well as entity responsible for monitoring, as indicated in SSEMP, are described in **Annex 1**.
70. Environmental monitoring started immediately after the commencement of civil works. Environmental safeguards monitoring has being performed as required in the EMP/SSEMP. MDF submits to ADB semiannual environmental safeguards monitoring reports, describing progress of implementation of EMP/SSEMP and any compliance issues and corrective actions, within 1 month after each reporting period. If any unanticipated environmental and/or social risks and impacts will arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, MDF ensures to promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan.
71. During reporting period, environmental aspects, monitored and managed by construction and supervising companies within the project, are provided bellow. It should be noted that for the monitoring of air, noise, water and other parameters, during measurements, standards, provided by the Decree 297/N on "Approval of norms on environmental quality conditions" elaborated by the Minister of Labor, Health and Social Affairs of Georgia (16. 08. 2001) were used, as mentioned decree determines and approves quality norms of environmental conditions, in order to ensure the safe environment for human health.

Biannual Environmental Monitoring Report

Air quality

72. Operation of heavy machinery, vehicles and other construction equipment result in dust generation and fugitive emissions of carbon monoxide, NO_x, SO₂, hydrocarbons, and particulate matter. Main air pollution source during the preparatory phase of the project was related to generation of dust due to demolition activities along with part 1 and part 3 of the project. Weekly dust monitoring activities have been carried out by GAMMA Consulting on specially selected points in adjustment with residential areas. For the part 1 geographic coordinates of the selected monitoring point is 490832.66 E 4612052.25 N and for part 3 493462.84 E 4608738.09 N. results of the monitoring are shown in the table 1:

Table 1: Dust Monitoring Results

Monitoring Point	Date	Dust Level (mg m ³)
490832.66 E 4612052.25 N	10.03.17	0.1
490832.66 E 4612052.25 N	17.03.17	0.1
490832.66 E 4612052.25 N	24.03.17	0.2
490832.66 E 4612052.25 N	31.03.17	0.1
490832.66 E 4612052.25 N	7.04.17	0.3
490832.66 E 4612052.25 N	14.04.17	0.2
490832.66 E 4612052.25 N	21.04.17	0.2
490832.66 E 4612052.25 N	28.04.17	0.3
490832.66 E 4612052.25 N	5.05.17	0.3
490832.66 E 4612052.25 N	12.05.17	0.2
490832.66 E 4612052.25 N	19.05.17	0.3
490832.66 E 4612052.25 N	25.05.17	0.3
490832.66 E 4612052.25 N	2.06.17	0.2
490832.66 E 4612052.25 N	9.06.17	0.3
490832.66 E 4612052.25 N	16.06.17	0.3
490832.66 E 4612052.25 N	23.06.17	0.3
490832.66 E 4612052.25 N	30.06.17	0.2
493462.84 E 4608738.09 N	10.03.17	0.1
493462.84 E 4608738.09 N	17.03.17	0.1
493462.84 E 4608738.09 N	24.03.17	0.1
493462.84 E 4608738.09 N	31.03.17	0.1
493462.84 E 4608738.09 N	7.04.17	0.1
493462.84 E 4608738.09 N	14.04.17	0.2
493462.84 E 4608738.09 N	21.04.17	0.1
493462.84 E 4608738.09 N	28.04.17	0.1
493462.84 E 4608738.09 N	5.05.17	0.2
493462.84 E 4608738.09 N	12.05.17	0.2
493462.84 E 4608738.09 N	19.05.17	0.1
493462.84 E 4608738.09 N	25.05.17	0.1
493462.84 E 4608738.09 N	2.06.17	0.2
493462.84 E 4608738.09 N	9.06.17	0.2
493462.84 E 4608738.09 N	16.06.17	0.3
493462.84 E 4608738.09 N	23.06.17	0.2
493462.84 E 4608738.09 N	30.06.17	0.3

Biannual Environmental Monitoring Report

73. Impact of the construction activities on air quality is not high and is manageable through application of good construction and vehicle/equipment maintenance practices. It is not possible to eliminate the emission of dust from a construction sites entirely. Nevertheless to minimize dust following mitigation measures are being taken:
- Water spraying inside and around the construction sites;
 - Using of only such vehicles and equipment that are registered, have necessary permits and maintained with relevant standards;
 - Storages of construction materials are located far from residential areas;
 - During the transportation of construction materials trucks are covered with special tarpaulins or other cover means to avoid spreading of fine aggregated material in the air;
 - The transportation of materials are carried out by initially selected and determined routs and the speed of the trucks are limited;
 - Wheels and undercarriage of haul trucks cleaned and washed prior to leaving construction site.
 - Project construction and supervision contractors have implemented weekly monitoring of dust generation due to construction activities. The level of dust in air was varying between 0,1-0,3 mg m³.

Noise and Vibration

74. It is not possible to eliminate the emission of noise (noise produced by various equipment and activities) entirely from a construction sites, however, mitigation measures like usage of vehicles and equipment that are registered and have necessary permits, no noisy construction activities during the nights, usage of silencers, mufflers and acoustic shields on equipment, limitation of the number of machines used one and the same time, using vibration absorbing handles or rubber-type vibration insulating devices between the tool and the hands implemented by the contractor, using hearing protection for workers, fixing 'out-of-balance' items reduces noise levels to a moderate magnitude.

Project construction and supervision contractors have implemented weekly monitoring of noise due to construction activities. Weekly noise monitoring activities have been carried out by GAMMA Consulting on specially selected points in adjustment with residential areas. For the part 1 geographic coordinates of the selected monitoring point is 490832.66 E 4612052.25 N and for part 3 493462.84 E 4608738.09 N. results of the monitoring are shown in the table 2: The level of noise was varying between 52-53 dbA.

Table 2: Noise Monitoring Results

Monitoring Point	Date	Noise Level (dbA)
490832.66 E 4612052.25 N	10.03.17	49
490832.66 E 4612052.25 N	17.03.17	48
490832.66 E 4612052.25 N	24.03.17	48
490832.66 E 4612052.25 N	31.03.17	48
490832.66 E 4612052.25 N	7.04.17	51
490832.66 E 4612052.25 N	14.04.17	49
490832.66 E 4612052.25 N	21.04.17	52
490832.66 E 4612052.25 N	28.04.17	53
490832.66 E 4612052.25 N	5.05.17	50
490832.66 E 4612052.25 N	12.05.17	51
490832.66 E 4612052.25 N	19.05.17	51

Biannual Environmental Monitoring Report

490832.66 E 4612052.25 N	25.05.17	53
490832.66 E 4612052.25 N	2.06.17	50
490832.66 E 4612052.25 N	9.06.17	52
490832.66 E 4612052.25 N	16.06.17	52
490832.66 E 4612052.25 N	23.06.17	49
490832.66 E 4612052.25 N	30.06.17	50
493462.84 E 4608738.09 N	10.03.17	47
493462.84 E 4608738.09 N	17.03.17	48
493462.84 E 4608738.09 N	24.03.17	47
493462.84 E 4608738.09 N	31.03.17	48
493462.84 E 4608738.09 N	7.04.17	50
493462.84 E 4608738.09 N	14.04.17	48
493462.84 E 4608738.09 N	21.04.17	49
493462.84 E 4608738.09 N	28.04.17	49
493462.84 E 4608738.09 N	5.05.17	51
493462.84 E 4608738.09 N	12.05.17	48
493462.84 E 4608738.09 N	19.05.17	49
493462.84 E 4608738.09 N	25.05.17	51
493462.84 E 4608738.09 N	2.06.17	50
493462.84 E 4608738.09 N	9.06.17	51
493462.84 E 4608738.09 N	16.06.17	52
493462.84 E 4608738.09 N	23.06.17	49
493462.84 E 4608738.09 N	30.06.17	51

Topsoil and subsoil

75. Top soil removal is conducted in accordance with the top soil management plan developed by Construction Company (June 10, 2017) and was approved by Dohwa.
76. Contractor minimizes usage of productive agricultural land and after completion of civil works will convert them to their original state. Embankments are monitored during construction for signs of erosion; long-term material stockpiles will be covered to prevent wind erosion. The storage of topsoil in stockpiles is conducted with relevant procedures and standards: no more than 2 m high with side slopes at a maximum angle of 45°. The topsoil is segregated from subsoil stockpiles. Special, separated storage area is allocated for the top soil storing to prevent the stockpiles being compacted by vehicle movements or contaminated by other materials. The area is protected from potential flooding. (Photos are provided at Annex 3). Topsoil stockpiles are monitored and in case of any adverse conditions be identified corrective actions will be taken.
77. The storage and monitoring of subsoil in stockpiles is conducted with relevant procedures and standards.

Soil Contamination

78. Inspection of vehicles is carried out to ensure that there is no leakage of fuel and lubricating materials into the soil. Contractor is ensuring the proper handling and storage of lubricants, fuel and solvents to prevent any leakage of these materials into the soil. All tanks are placed in a bund according with relevant procedures and standards. Equipment and storages is isolated and guarded.

Biannual Environmental Monitoring Report

79. Refueling process is made according to established standards and procedures.

Flora and Fauna

80. In Part 1 and in urban area of Part 3 of the road section II flora and fauna values are very low. The only sensitive zone within project area is Krtsanisi Forest Park, which is located in non-urban area of Part 3 of the road section II.

81. For the protection of the sensitive habitats and endangered flora and fauna species within project area, following actions are implemented:

- Pre-entry survey was conducted in March 2017 in project area.
- Exact demarcation felling trees (to exclude cutting of other trees)
- Each tree subject for felling is marked, measured and described and the tree felling program agreed with the Tbilisi City Hall (Environmental Services), as well as Gardabani municipality
- The red data species (*Juglans regia*, *Ulmus minor*, *Quercus pedunculiflora*) extraction within the municipal land plots is agreed with the Tbilisi City Hall, Gardabani municipality and Ministry of Environment and Natural Resources Protection.
- Felling of the common species of trees not included in the red data list is conducted in accordance with the Law of Georgia "On special protection of green plantations and state forest fund within the boundaries of Tbilisi and its environs" (2000, as amended in 2015).
- The process of extraction of the red list trees is proceeding according to special procedures and agreement with the MoENRP, determined by the law of Georgia on "the Structure, Incumbency and Rule of Conduct of the Government of Georgia".
- Survey has been conducted to confirm the absence of nests of protected bird species within the limits of the construction corridor.
- Survey has been conducted to confirm the absence of the bat colonies in the tree hollows to be cut down.

82. During project implementation some temporary disturbance to a range of common urban fauna species (mostly birds) will occur, but the impacts are unlikely to be significant.

83. Limitation of the dust and emissions from construction machinery/vehicles - vehicle transportation monitoring and carrying out the watering of area - especially, near street trees and the parkland/green recreation area in the Krtsanisi Forest Park are used to control and reduce risks and hazards.

Water resource and River Mtkvari

84. The principal source of construction impacts on water is related to the r. Mtkvari. As the project implementation activities especially for Part 1 of the road section II located near the r. Mtkvari it is high risk of contamination of surface water. To avoid/minimize negative impact on the r. Mtkvari Constriction Contractor follows all instructions outlined in EIA/IEE/SSEMP during all phases of project implementation. Also, emergency response plan, which was approved by the MoENRP contains the chapter about avoidance of contamination of river Mtkvari and mitigation measures in case of possible spills.

85. No activities were implemented in the river during reporting period. Just some construction activities for making basement of retaining wall, which length in this section is 130 m have been started, near river bad, by end of June. Special attention was paid to operation of vehicles near the river, through inspection of vehicles to ensure that there is no leakage of fuel and

Biannual Environmental Monitoring Report

lubricating materials. The Construction Company is limiting storage of lubricants, fuel and solvents in adjustment to r. Mtkvari. All construction activities near the riverbed are planned during the low water season and out of spawning period.

86. No water measurement data are available for the reporting period, as working activities related to the construction of retaining wall, as it was already mentioned, have been started by end of June.

Cultural heritage

87. No cultural affections have been detected.

Hazardous and Non-hazardous Waste

88. Constructions works generate different type of wastes starting from garbage, recycle waste, household waste and construction and demolition debris, including, hazardous wastes generated mainly from the vehicle maintenance activities (liquid fuels, lubricants, hydraulic oils, chemicals and etc.) and demolishing of buildings (asbestos).
89. The most significant solid waste from the project is the construction and demolition debris, followed by spoil from excavations, which is removed from site by an approved waste management contractor.
90. In May, 2017 Construction Company has elaborated and needs to be agreed with the Ministry of Environment and Natural Resources Protection waste management plan according to Georgian regulations to manage waste generated during project implementation phases.
91. Disposal of the hazardous waste also needs to be agreed with the MoENRP and local authorities and managed according to adopted waste management plan.
92. The Construction Company collects hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at the temporary storage sites and further at the locations approved by MoENRP or pass it to the licensed operator, having environmental permit on operation of the hazardous wastes. For further management of hydrocarbon waste Construction Company is in the process of signing contract with licensed company.
93. The Construction Company has responsibility for the asbestos waste management. The certified company ("Datuni" Identification Number: 406032065) was hired by Construction Company for proper management and safe disposal of asbestos waste according to existing acting legislation and good international practices. Asbestos material were disposed on Marneuli landfill in accordance to the contract with Solid Waste Management Company of Georgia.

Damage to existing infrastructure

94. The complete list of the utilities and infrastructure to be relocated or affected is developed.
95. The Construction Company is working closely with any utility company having their infrastructure located within the public right-of-way.

Biannual Environmental Monitoring Report

96. Before construction is started the Construction Company had notified the utility companies of the proposed work area and requested that they mark the location of any types of equipment in the area.
97. The Construction Company had established the position of existing services such as pipelines, sewers, surface water drains, cables for electricity and telephones, overhead lines and water mains, before starting any excavation or other work likely to damage them.
98. The Construction Company arranged liaison with the appropriate authorities, the moving of or alterations to services such as pipelines, power and telephone lines, water mains, sewers and surface water drains which the works affects.

Community safety and traffic disruption

99. Design and construction works are in compliance with the technical standards. Emergency Response plan is developed in April 2017 and agreed with the Ministry of Environment and Natural Resources Protection.
100. Traffic Management Plan should be developed by Construction Contractor till July 10 and agreed with the Road Department of Georgia and Patrol Police Department.
101. To avoid/minimize traffic disruption traffic management schemes is applied. The Construction Company works in close cooperation with Road Department and Patrol Police Department to regulate traffic on the project site.
102. Road vehicles equipped with sound signals and light signals. Drivers are trained in safety operation standards. Parking place is arranged with relevant standards. Flagmen are provided with special uniforms and special footwear. Local community members are informed about planned and ongoing activities. Area is fenced and information signs are available to warn people. Detailed Information about conducted trainings and participants is provided in the table 3 below.

Table 3: Information about conducted trainings and participants

TYPE OF EDUCATION/ TRAINING	FIRM	DIVISION	NUMBER OF PERSONNEL TAKING EDUCATION	REGISTRATI ON SYSTEM	DURATION	TIME
SITE INDUCTION	SEZA	EACH PERSONNEL JUST START WORKING	69	SITE INDUCTION CHECKLIST	2 hour	138
EDUCATION ON SAFE WELDING AND CUTTING	SEZA	GENERAL FIELD PERSONNEL	10	SIGNATURE FORM	1 hour	10
EDUCATION ON SAFE WORKING WITH ELECTRICAL POWERTOOLS	SEZA	GENERAL FIELD PERSONNEL	53	SIGNATURE FORM	1.30 min	79,30

Biannual Environmental Monitoring Report

EDUCATION ON ELECTRICAL WORKS	SEZA	CAMP PERSONNEL	2	SIGNATURE FORM	1 hour	2
EDUCATION ON USAGE OF MOTOR VEHICLE	SEZA	GENERAL FIELD PERSONNEL	8	SIGNATURE FORM	30 min	4
DAILY JOB SPEECH/TOOL-BOX TALKS	SEZA	EACH PERSONNEL WORKING BY DAILY	875	SIGNATURE FORM	5 min	7291
EDUCATION ON ENVIRONMENTAL ISSUES (waste man. Refueling, pollution prevention, topsoil man. Oil spill resp). cevre	SEZA	GENERAL FIELD PERSONNEL	75	SIGNATURE FORM	1 hour	75
ACM collection transportation and disposal	SEZA	GENERAL FIELD PERSONNEL	12	SIGNATURE FORM	30 min	6
MEETING WITH LOCALS	SEZA	POPULATION NEARBY OLD FACTORY	30	SIGNATURE FORM	30 min	15
EDUCATION ON ANY DANGER OF FIRE	SEZA	GENERAL FIELD PERSONNEL	84	SIGNATURE FORM	30 min	42
DISMANTLING WORKS	SEZA	GENERAL FIELD PERSONNEL	18	SIGNATURE FORM	2 hour	36
SNAKES	SEZA	GENERAL FIELD PERSONNEL	70	SIGNATURE FORM	30 min	35

Occupational health and safety

103. The Construction Company is performing works in accordance with labor protection and safety requirements as well as industrial sanitation requirements. The Construction Company instructed the staff on safety measures prior to the commencement of works. Workers are using personal protection equipment. Warning signs are placed at the project area.

Biannual Environmental Monitoring Report

Workers Camps

104. The workers camp is located in the same area, where located previous workers camp for the construction of section 1 and section 3 of the Tbilisi-Rustavi road. The impacts related to the construction and operation of the camp on environmental and social receptors could be summarized as very low. The construction camp is equipped with necessary infrastructure. Monitoring activities are implemented by Environmental Specialists on the daily basis.

3 PART III: ENVIRONMENTAL MANAGEMENT

3.1 The environmental management system (EMS), site-specific environmental management plan (SSEMP) and work plans

105. IEEs, including EMPs, are integral parts of the contracts and their implementation is mandatory for contractors. Contractor Company, as it was mentioned above, submits monthly progress reports to Supervisor Company “Dohwa” and MDF. Monthly report includes chapter on environmental performance. Consultant Company “Dohwa” prepares quarterly environmental reports and submits to MDF on progress of the environmental management plans.
106. Following the award of the contract and prior to construction commencing the Contractor has reviewed the EMP and developed this into a detailed Site-Specific Environmental Management Plan (SSEMP) that amplifies the conditions established in the EMP that are specific for the project, the tasks involved and schedule of construction activities. The SSEMP includes a matrix of mitigation measures corresponding to specific activities.
107. The draft version of SSEMP was prepared by the Contractor and sent to Supervision Consultant (SC) for endorsement on 10.04.2017. SSEMP has been further reviewed and commented for improvement by the MDF’s Local Environmental Consultant and ADB International and Regional Environmental Consultants. It was approved by PIU/MDF in June 19, 2017.
108. Detailed information on management plans and their statuses for the reporting period is provided in the table 4 below:

Table 4: Status of Management Plans

	Name of Plan	Preparing by/ Prepared by	Deadline for submission/ Date of preparation (status)	Agreed with/ Approved by
1	Pre-construction survey of flora and fauna within the RoW	Prepared by GAMMA Consulting	May 5, 2017	Approved by DOHWA and MDF
2	Emergency Response Plan	Prepared by GAMMA Consulting	April 5, 2017	Approved by DOHWA and MDF
3	Waste Management Plan	Prepared by GAMMA Consulting	May 15, 2017	Agreed with SEZA

Biannual Environmental Monitoring Report

4	Top Soil Management Plan	Prepared by GAMMA Consulting	June 10, 2015	Approved by DOHWA and MDF
5	Communication plan with local people	Prepared by GAMMA Consulting	June 20, 2017	Should be approved by DOHWA and MDF
6	Traffic management plan; it shall include Community Safety and a Community Liaison Management Plan	Preparing by GAMMA Consulting	July 10, 2017	Should be approved by DOHWA and MDF
7	Camp site management plan, layout plan of the work camp and sanitary facilities, including a description of wastewater treatment and disposal	Preparing by GAMMA Consulting	July 10, 2017	Should be approved by DOHWA and MDF
8	Cultural Heritage Management Plan	Preparing by GAMMA Consulting	July 10, 2017	Should be approved by DOHWA and MDF
9	Health and Safety Plan	Preparing by GAMMA Consulting	July 10, 2017	Should be approved by DOHWA and MDF
10	Tree felling and landscape management plan	Preparing by GAMMA Consulting	July 10, 2017	Should be approved by DOHWA and MDF
11	A method statement on the management of dust and noise from material transport (including construction of temporary noise barriers)	Preparing by GAMMA Consulting	July 10, 2017	Should be approved by DOHWA and MDF
12	Vibration control management plan (building 2,3 and 4)	Preparing by GAMMA Consulting	July 10, 2017	Should be approved by DOHWA and MDF

3.2 Site inspections and audits

109. Site supervision and inspections, as well as monitoring of compliance of construction activities are important aspects to ensure the proper implementation of EMP/SSEMP requirements. Environmental management team of Construction and Supervisor Companies carry out permanent supervision activities and monitoring of the project performance on regular bases.

110. The schedule of conducted audits and monitoring implemented by CC and SC environmental specialists, during the reporting period, is given in the Table 2, below:

Table 4: The schedule of conducted audits and monitoring during the reporting period

Site visits	Organization			Comments
	Supervision Company (DOHWA)	Construction Company (Environmental Consultant GAMMA Consulting)	Construction Company (SEZA HS&E Manager)	

Biannual Environmental Monitoring Report

Site audit	March – 1, 2, 6, 7, 9, 10, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31	March – 1, 6, 9, 10, 13, 15, 17, 20, 22, 24, 27, 28, 29, 31	March	MDF's representative-project monitoring specialist is permanently on site. Weekly meetings also are conducted in a regular base every Tuesday. SEZA environmental Consultant Company (GAMMA Consulting) and OH&E Manager are attending weekly meetings and discussing pending environmental issues (Tree cutting permits, top soil removal and stockpile, waste management, reporting issues and etc) together with DOHWA and MDF's Managers, environmental consultant and Engineers.
Site audit	April – 3, 4, 5, 6, 7, 10, 11, 12, 13, 18, 19, 20, 21, 24, 25, 26, 27, 28	April - 3, 5, 7, 10, 12, 13, 18, 19, 21, 24, 26, 28	April	
Site audit	May – 1, 2, 3, 4, 5, 8, 10, 11, 15, 16, 17, 18, 19, 22, 23, 24, 25, 29, 30, 31	May - 1, 3, 5, 8, 10, 11, 15, 17, 19, 22, 24, 25, 29, 31	May – 29, 30, 31	
Site audit	June – 1, 2, 5, 6, 7, 8, 9, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30	June - 2, 5, 7, 8, 9, 12, 14, 16, 19, 21, 23, 26, 28, 30	June – 2, 3, 5, 6, 7, 9, 10, 12, 13, 14, 16, 17, 19, 20, 21, 23, 24, 26, 27, 28, 30	

111. MDF's local environmental consultant is ensuring that the Contractors - CC and SC understand what is to be done and how to rectify and address any environmental issues raised during project implementation process.
112. MDF's national environmental consultant Nino Nadashvili regularly performs monitoring of ongoing activities with close cooperation with environmental specialists of SC and CC companies, by mailing them and by conducting the meetings and site monitoring visits.
113. First introductory meeting with CC and SC management was conducted on February 1 at the MDF office, after signing the Contract. During that meeting national environmental Consultant Nino Nadashvili communicated with CC and SC regarding the env. aspects of the project and required CC to find and hire environmental specialist as soon as possible. It was expressed the urgent to produce a detailed SSEMP before starting any construction activities.
114. Official Kick of Meeting was conducted on March, 31, 2017, at Camp site with participation of CC and SC representatives. Nino Nadashvili-env. Consultant of MDF draw attention on some aspects of the contractual requirements and mentioned that the proper implementation of environmental protection issues envisaged under the Contract (No: P42414-SUTIP3- ICB-3.02.2015), signed on December 12, 2016 between the Municipal Development Fund of Georgia and LTD Seza Insaat, is very important.
115. She mentioned, that according to sub-clause 4.18 of Particular Conditions of Contract –Part B, Contractor has to ensure, that project is to be carried out in accordance with all applicable laws and regulations of Georgia, ADB's Safeguards Policy Statement (2009) and EMP, including the mitigation measures and monitoring requirements, arising from the environmental assessment and review procedures outlined in the IEE.

Biannual Environmental Monitoring Report

116. Env. Consultant Nino Nadashvili reminded that Preparation and submission of necessary environmental documentation to the Supervision Company and MDF, are requirements of the Initial Environmental Examination (IEE) report, which is the integral part of the Contract. Thus, implementation of requirements of IEE/EMP are obligatory for the Contractor. As it already was considered during the meeting held on February 1, 2017 at the MDF office, the number of environmental documentation needs to be prepared and submitted by the Contractor to the Supervision Company Dohwa and MDF, during mobilization period and prior to any construction activities.
117. Environmental documentation, which were requested by MDF's environmental Consultant to the CC, to be prepared during mobilization period, are as follows:
- **Site-Specific Environment Management Plan (SSEMP)** - (first draft was prepared by CC in April, final document (rev6) was approved by ADB in June, 2017;
 - **Emergency Situation Response Plan**, which will also incorporate action plan for prevention of possible pollution of river Mtkvari at the construction and operation stages - prior to commencement of construction works. Mentioned document needs to be submitted to the MoENRP as well – (was prepared and approved by all relevant parties, in April)
 - Pre-Entry surveys for preventing damage to flora and fauna - In order to protect the sensitive habitats and endangered flora species, quantitatively assess the red data species presented within the zone, the following actions needs to be implemented:
 - Pre-entry survey to confirm the absence of nests of protected bird species within the limits of the construction corridor;
 - Survey to confirm the absence of the bat colonies in the tree hollows to be cut down;
 - Exact demarcation of those trees that are subject for felling (to exclude cutting of other trees);
 - Detailed taxation and cadastral inventory of trees and preparation of tree cutting plan, which will be agreed with proper agencies before cutting;
 - Extraction of the red data tree species from the natural environment should be conducted according to the requirements of the Georgian Law on Red List and Red Book.
 - **Pollution prevention plan;**
 - **Top-soil management plan covering issues of its stripping and storage;**
 - **Waste Management Plan** - according to Georgian new "Waste Management Code" (article 14), Contractor has to prepare Waste management Plan of the Company (describing in details hazardous waste management, particularly, asbestos management) and submit it to the MoENRP for approval. According to the same law (article 15) Contractor should hire the Environmental Manager, whose name will also be submitted to the MoENRP officially. Waste Management Plan needs to be prepared during the one month after the Commencement Date.
118. It was mentioned to the Contractor also, that besides, preparation of above-mentioned documents, there are several environmental aspects, requiring special attention from the Contractor's side, during construction activities. Issues of high environmental importance, are as follows:
- In the process of construction, ensure the utilization of the construction camp and asphalt-concrete plant existing during construction of the first and third sections of Tbilisi-Rustavi

Biannual Environmental Monitoring Report

highway, what will reduce additional impacts on the population, atmospheric air, soil and other significant components of environment;

- During construction and operation activities, ensure adherence to admissible noise levels specified in the Table 7.8 of the IEE - 55 db A - in the daytime (from 7hr. until 23 hr.) and 45 db A – in night hours (from 23 hr. until 7hr.). In case of exceeding the mentioned limits, Contractor has to elaborate additional mitigation measures. Moreover, it is necessary to conduct the monitoring during all seasons year-round;
- At the construction and operations stages, ensure the monitoring of vibration and its impacts on residential buildings located in the design area, in order to observe admissible limits of vibration. In case of exceeding the named limits, Contractor ensures elaboration of additional mitigation measures;
- Ensure protection of qualitative conditions of environment during the transport operation, at the adjoining areas, pursuant to the current active regulations as at the construction, as well as the highway operation stages.
- **Grievance Redress Mechanism (GRM)** – in accordance with the ADB SPS 2009 requirements, a Grievance Redress Mechanism should be set up for the Project, to deal with both – the environmental and social issues. MDF as the Executive Agency will facilitate the grievance resolution by implementing a project-specific Grievance Redress Process. Grievance Focal Points should be selected from the local residents as community representatives, prior to construction activities, which functions are to address concerns and grievances of the local communities and affected parties. The sufficient number of GFPs for the Project is 1-2 persons. Any complaint should be recorded in Complaints Log Book, which will be available at the Camp site and in the Gamgeoba office, with the presence of the GFP. A public meeting it is foreseen before the commencement of works to advice population about starting of works, duration of works and activities to be performed.

119. MDF monitors construction progress by attending the regular weekly meetings between the Supervision Company and the Construction Company. MDF's local environmental consultant is attending weekly meetings and requesting from the Engineer and Contractor strict and unconditional compliance with ADB requirements and Georgian legislation in terms of safety and safeguards.
120. MDF's local environmental consultant ensures that the Contractors understand what is to be done and how to rectify and address any environmental issues raised during project implementation process.
121. HS&E Manager of the Construction Company – Vladimer Melia is permanently on site and implementing daily inspections of construction activities in regular base.
122. Local environmental consulting company "GAMMA Consulting" is contracted by Construction Company in February 2017 for the whole duration of the construction work. GAMMA Consulting conducts site-monitoring visits 2-3 times per week and monitors implementation of the EMP/SSEMP during construction activities. He prepares monthly reports and submits to DOHWA and MDF.

Biannual Environmental Monitoring Report

123. During site inspection, representatives of 'GAMMA Consulting' visits the areas, where construction activities are carried out, site monitoring check-lists are filled out every week and signed by SEZA HS&E manager and 'GAMMA Consulting' environmental monitoring specialist. The sample of one of the check-list's is provided as Annex 4.

124. During monitoring visits the following items were monitored and checked:

- **Levels of dust** – Road construction corridor, the levels of dust weren't considered high as construction activities are in inception phase and Construction Company is watering the area during construction activities as it is recommended by SSEMP. Several cases were observed when dust was generated during demolishment of buildings and transportation of demolished materials. Special instructions were given to workers and managers to water the area where demolishment activities are ongoing during dry day periods and cover tracks, which are transporting demolished materials and removed soil.
- **Compliance of the maximum high speed limit of 30 km/h** -In the work area, the vehicles were respecting the high speed limit;
- **Presence of abnormal smells** -No abnormal smells have been detected;
- **Proper waste management and cleaning of the worksite** – Construction Company has developed waste management plans and is managing household waste generated on the campsite and hazardous waste especially asbestos produced during the demolishment of buildings in line with waste management plan. There was a lack of rubbish bins observed during May and April on campsite. After the warning from environmental monitoring specialist the company has installed additional bins. Hazardous waste is collected in specially allocated area, packed and transported to landfill in accordance with Georgian regulations (See annex 3 Photos).
- **Affection to flora, fauna or historical heritage** - during the construction preparatory activities specialists of GAMMA Consulting have conducted pre-entry survey to asses impact on flora and fauna on adjacent territory. Tree inventory was carried out as a part of pre-entry survey. Tree Inventory reports were prepared and submitted to respected state agencies.
- **Topsoil removal and disposal** – As apart of construction preparatory activities top soil removal and disposal activities are in place in construction corridor. Construction Company is following topsoil management plan prepared by GAMMA Consulting and agreed with the Ministry of Environment and Natural Resources Protection of Georgia.
- **Cutting and disposal of trees** – Tree cutting process is implemented in line with permits obtained from Gardabani and Tbilisi municipalities. Problem related to storage of cut trees has occurred due to untimely provision of disposal site from Gardabani municipality. The problem was resolved during several days after agreement with the municipality competent specialists.

125. During of reporting period a series of meetings were held with CC and SC. Weekly meetings are conducted in a regular base every Tuesday. SEZA's environmental Consultant Company (GAMMA Consulting) and OH&E Manager, as well as Dohwa's env. Specialist –Paata Chankotadze are attending weekly meetings and discussing pending environmental issues (Tree cutting permits, top soil removal and stockpile, waste management, reporting issues and etc) together with MDF's Managers and national environmental consultant.

Biannual Environmental Monitoring Report

3.3 Noncompliance notice and corrective actions

126. Identification of problematic issues and noncompliance notice during site inspections is the responsibility of Environmental Specialist of Supervision Consultant. During reporting period several site visits has been implemented by environmental specialists of Construction and Supervision Companies in order to check environmental conditions at the camp site.
127. In case of any deviations of EMP and SSEMP requirements corrective actions and mitigation measures are applied. All mitigation measures during pre- and construction phases of SPs are implemented by construction contractors according to EMP and SSEMP.
128. According to information, provided by environmental specialist of SC, there were just simple deviations observed during reporting period, as no intensive construction activities have been carried out within the reporting period. After commencement date (February 28) two months were used by the CC as mobilization period and no construction activities were carried out during this time. Deviations observed during civil works implemented within the reporting period, are as follows:
 - At the beginning of project implementation Personal Protective Equipment (PPE) were not adequate and were not worn by all personnel at the construction site during working period as it is required by EMP/SSEMP. But at the end of the reporting period (end of June), respective corrective measures were taken and Construction Company obtained relevant PPE for all working personnel and obliges them to wear PPE during construction activities at the site.
 - Tracks, which were transporting demolished and construction materials, as well as removed soil were not covered to prevent the dust. This non-compliance was noted by environmental specialist of SC and warning was given to Construction Company to correct this problem as soon as possible.
 - According to EMP/SSEMP all wastes generated during project implementation period should be managed according to waste management plan, which also implies to hire and sign contracts with licensed waste management companies and allocate rubbish bins at the site. During observation period (April-May) there were not adequate amount of rubbish bins available at the site. But at the end of June these non-compliance was eliminated. Contracts are signed with the licensed waste management companies and relevant amount of rubbish bins were allocated at the site.
 - Availability of water for personnel at the site also was one of the problems, which have been observed during monitoring period. By the end of June this non-compliance also was corrected.

3.4. Consultation and Complaints

Grievance Redress Mechanism (GRM)

129. In order to provide a direct channel to the affected persons for approaching project authorities and have their grievance recorded and redressed in an appropriate time frame, Grievance Redress Mechanism was established with efforts of MDF.
130. Also, on June 26, meeting was held at MDF's office dedicated to briefing about the concept note of GRM for sub-contractors SC and CC. Training was conducted by ADB's RETA Consultants Nurjan Dzhumabaev and Ketevan Dgebuadze. Detailed information was provided about scope of the GRM and on how to differentiate grievances that can/should be handled by CC from grievances, that should be directed to the MDF. All attendants found provided information very helpful and informative.

Biannual Environmental Monitoring Report

131. Complaints' registration journal is created and available at construction site. The copy of journal with mobile numbers of relevant persons – Mr. Vladimer Melia, (Site HS&E Manager of Construction Company), to be addressed is placed at local Municipality as well. Complaints' from the local people, regarding the environmental safeguard issues in case of their disturbance and inconvenience, because of improper or inadequate implementation of EMP/SSEMP, can be accepted in both places. Complaints' would be registered in database system, assigning compliant number with date of receipt. Complaints' would be investigated and complainant would be informed about time frame in which the corrective action will be undertaken, in case if the raised problem is realistic. Thus every complain would be indicated in **Complaints Log book**, and problems would be solved in accordance of rules and regulations under the control of the supervising site manager and DOHWA's local Environmental Specialist (Paata Chankotadze), and if necessary with involvement of MDF side as well.
132. Grievances to be handled at the level of CC or SC include:
- Social concerns related to contractor activity;
 - Environmental management;
 - Community safety.
133. The issues listed below should not be included if the GRM for CC or SC and should be directed to MDF's safeguard Unit:
- land acquisition,
 - valuation,
 - compensation,
 - entitlements,
 - public consultations and meetings or delivery of information (e.g. results of environmental monitoring).
134. CC should maintain a grievance logbook at all sites and register queries / complaints / concerns (both written and verbal). A copy of logbook, together with status update on pending grievances, should be submitted, through SC, to MDF's SU on a bi-monthly basis. A summary report on grievances reported and closed by CC should be submitted to MDF and ADB as part of semi-annual EMR.
135. Information on grievances raised during reporting period is provided in the table 5 below:

Table 5: Status of Grievances

N	Grievance/Problem	Notification	Action	Result
Social Concerns				
1.	Elguja Tsurtsunia ID 62005005986 cadastral code 81.05.05.855 Mr. Elguja asked us to give a drawing of the road construction. The reason for the request is that	28 JUNE 2017	Drawing has been delivered to Elguja in the same day	Solved

Biannual Environmental Monitoring Report

	his land plot is very close to new road. Because he plans to construct building on his plot city architect service demanded map of new road.			
--	--	--	--	--

136. No other complaints or grievances have been raised during reporting period.
137. Two complaints were forwarded to the ADB's Compliance Review Panel (CRP) from residents of Ponichala. One complaint was sent on 14 March 2016, by at least 81 residents of building 12 in the Ponichala area of the road section 2 of the Rustavi Highway, and the second on November 10, 2016, from 72 residents of the 5-storey building identified as 16 a/b, Rustavi Highway. This building is in close vicinity of building 12. In both complaints the complainants alleged that they were not properly consulted about the impact of the Project and the proposed mitigation measures
138. On 16 January 2017, the CRP concluded that the issues raised in both complaints are similar and the second complaint can be consolidated with the first complaint.
139. In order to bring the project back into compliance, and in response to the findings of the CRP report, ADB and MDF propose to undertake an integrated approach involving additional studies for noise impact, impact on the river ecology and iterative targeted consultations at the community level with a particular focus on the vulnerable. This approach will be instrumental in identifying suitable solutions that are technology feasible, cost effective, and compliant with all relevant standards. Also, as required by ADB's Safeguard Policy Statement, consultations with communities must continue throughout the project, or if there are changes in the project. An action plan is agreed. The proposed Action Plan is to be implemented over a period of two (2) years, to be completed by June 2019.
140. ADB and MDF have initiated activities that feed into the Action Plan to bring the project back into compliance. These activities are in the form of studies, surveys and researches including.
141. **Noise impacts:** ADB has undertaken a study of the noise impacts of the project as required by the WHO noise standards reflected in the WB EHS Guidelines. As part of this study, a comprehensive baseline of the ambient noise is established, followed by modeling for noise levels in the construction and operation stage of the project at various times in the future, and under various scenarios involving different mitigation methods.
142. **Vibration impacts:** MDF has initiated a vibration impacts study. Through this study the natural frequencies of the core and voluntary additions of the buildings in the Ponichala area will be measured, the impacts of the vibration are then modelled, if there are impacts, appropriate mitigation measures will be recommended. The study will include vibration modeling based on the changes in vibration impacts that may result from different noise mitigation scenarios; likely impacts and mitigation measures for the vibration affected buildings. The first draft of the conducted study was provided in March. The second draft will be ready in July 2017.
143. **Targeted Consultations:** MDF has initiated a process of developing a comprehensive communications strategy for the project. A national communication specialist has been recruited to assist MDF to develop this strategy, which includes undertaking targeted consultations in the project area, with a focus on vulnerable and in particular vision impaired people. These consultations will include a combination of household surveys, focus group

Biannual Environmental Monitoring Report

discussion, semi-structured interviews and open meetings and will be undertaken under the close supervision of ADB.

144. **River Ecological Impacts:** A river ecology screening and impact assessment study has been initiated to investigate the ecological sensitivity of the river to the project, and will assess the impacts, and likely mitigation measures. Samples were undertaken in the river and were tested, examined and analyzed by experts involved in the study. Draft report of conducted study has been prepared.
145. **Storm Water drainage:** The MDF through design engineer will initiate revision of the storm water drainage to protect the river water in case of traffic accidents. Contingency plans will be prepared as a part of the site specific environmental management plan, which will be prepared for this section.

3.5 Actions taken to reflect the findings of ADB mission during reporting period

146. A Loan Review Mission (the Mission) visited Georgia during March 17-25 to follow-up on implementation of Tranche 1 and Tranche 4 projects. The Mission met with the Ministry of Finance (MOF), Ministry of Regional Development and Infrastructure (MRDI), Municipal Development Fund (MDF), Roads Department (RD), consultants and contractors, and conducted site visits. Wrap-up meeting was held in Tbilisi with MRDI on 23 March 2017, and MOF and MDF on 24 March 2017.
147. The main focus of the Mission with respect to social safeguards was on monitoring of actions for resolution of complaints formulated by APs of TRURL project. ADB project team is working closely with MDF. All cases are monitored on a weekly basis (between ADB missions) and ADB social safeguards RETA consultant has been assigned (full time since June 2016) to work directly with MDF and to interact with complainants, in consultation with ADB project team and MDF. The Mission met with MDF safeguards unit on a daily basis.
148. Information on actions taken to reflect the findings of ADB is provided above, under para:141-145

3.6. Action plan for the next period

149. Next EMR for **Tbilisi-Rustavi Urban Link - section II** project for the period July-December, 2017 will be submitted in January, 2018 (at the same time as EMRs for SUTIP 1 and 2).
150. For **Anaklia coastal improvement project (Phase II)**, as project was cancelled because of planned construction of a deep sea port, which interferes with the Anaklia coastal protection subproject Phase 2, further actions should be considered and agreed with ADB.
151. During the ADB mission conducted within 3-11 May, 2016 MDF was advised to prepare a plan for the storage and use of the tetrapods which were left unused under both projects. The tetrapods will need to be stored according to the stone yard guidelines of Sogrea (design of tetrapod) as indicated by the Engineer. Various options were discussed and MDF agreed to provide a short to medium term storage plan, till the re-use option is decided. It was agreed that the existing location be converted into a proper stone yard, as the tetrapods

Biannual Environmental Monitoring Report

should only be moved once, when they are to be installed at their new location, this would have minimum environmental and safety risks.

152. The draft of mentioned plan for storage of tetrapods was prepared by the Engineer in the end of June, 2016 and submitted to the MDF for consideration. After, prepared plan was sent to ADB as well.

Biannual Environmental Monitoring Report

4 Annexes

Biannual Environmental Monitoring Report

Annex 1: Monitoring Data

Object of monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
Possession of official approval or valid operating license and permits	Supplier of materials (asphalt, cement and gravel)	Inspection	Before an agreement for the supply of materials is formalized	Assure compliance with HSE requirements	Constructing Contractor, MDF, Supervising Agency
Truck loads covered/ wetted Air pollution due to the dust and fumes related to the Material Transport	Construction site and access road	Supervision	Unannounced inspections during work hours	Assure compliance with HSE requirements. Ensure safety, and minimize traffic disruption	Constructing Contractor, MDF, Supervising Agency
Top-soil storage reinstatement, Erosion control Landscape destruction Visual impacts	Construction site	Supervision	Periodic (Unannounced inspections during work hours); From top-soil stripping – to completion of the works	Assure compliance with construction standards, environmental norms and EMP provisions	Constructing Contractor, MDF, Supervising Agency
Noise and vibration levels Compliance with the noise and vibration standards Compliance with the recommendations adopted by the additional studies on assessment and prevention of vibration impacts on the structural integrity of buildings. Admissible thresholds:	Construction Site Near the residential buildings	Inspection, compliance monitoring (engine maintenance, usage of mufflers, night time work limitations and other provisions of EMP), monitoring of noise continuously at a representative residence near construction activities, noise and vibration	Periodic (average once per month); Only in case of complaints	Assure compliance with HSE requirements, good condition of standard construction machinery and limiting the works near settlements	Constructing Contractor, MDF, Supervising Agency, MoENRP

Biannual Environmental Monitoring Report

Noise – 55dBA (Daytime) – 45 dBA (Night time) Vibration 74 dBV (Daytime)		measurement by special device			
Vibration Admissible thresholds: Vibration 74 dBV (Daytime)	Construction site Near the residential buildings	Supervision	Unannounced inspections; following complaints	Assure compliance with HSE requirement s.	Constructing Contractor, Supervising Agency,
Dust and Air pollution (solid particles, suspended solids, flying heavy metal particles) (dust, CO) Criteria: MAC for dust 0.15mg/m ³ For cement dust – 0.5mg/m ³ And MAC for CO).5 mg/m ³	Near residential buildings Along the whole alignment of the road	Visually and instrumentally (dust, CO ₂)	Daily During material delivery and periodically (weekly) in dry periods during construction	Assure compliance with HSE requirement, assure compliance with environmental norms and EMP provisions	Constructing Contractor, MDF, Supervising Agency
Traffic safety/ Vehicle/ pedestrian access Visibility/ appropriate signs	Construction site	Observation	Once per week in the evening	Assure compliance	Constructing Contractor, MDF, Supervising Agency
Material and waste storage, handling, use Water and soil quality (suspended solids, oils, etc)	Material and waste storage sites; Run off from site; material storage areas; wash down areas	Observation Instrumental measurement of water turbidity upstream and downstream	During material delivery and periodically during construction (average 1/week), especially during precipitation (rain/ snow/ etc).	Assure pollution abatement; Assure compliance with construction standards, environmental norms and EMP provisions	Constructing Contractor, MDF, Supervising Agency – instrumental
Waste Management	All construction sites, Camps	Observation	Once per week	Assure pollution Abatement, Assure	Constructing Contractor, MDF, Supervising Agency

Biannual Environmental Monitoring Report

				compliance with, construction standards, environmental norms and EMP provisions	
Equipment maintenance and Fueling Water and soil quality (suspended solids, oils, fuel, etc)	Refueling and equipment maintenance Facilities, Run off from site, material storage areas	Observation	During material delivery and periodically during construction (average 1/week), especially during precipitation (rain/ snow/ etc).	Assure pollution abatement	Constructing Contractor, MDF, Supervising Agency,
Impacts on archaeological sites and remnants	All earthwork sites	Observation	Permanent/daily	Assure cultural heritage protection	Archaeologist from MoCMP Constructing Contractor, Supervising Agency,
biological recontamination during earthworks near pestholes of soil infections (e.g. anthrax);	All earthwork sites	Observation	Permanent/daily	Assure health protection	Constructing Contractor, MDF, Supervising Agency, Veterinary Department of the MoA
Protection of infrastructure elements	Crossings of power lines, pipelines;	Observation	During construction activities at the sites of concern	Assure infrastructure protection	Constructing Contractor, MDF, Supervising Agency,
Offset tree planting Program	TBD	Observation	During Construction period	Assure offset of damage to flora and landscape	Constructing Contractor, MDF, Supervising Agency, MoENRP
Reinstatement of work sites	work sites, road alignment, used quarries, camp sites	Observation	During Construction period, after completion of works at concrete site	Reinstatement of work sites not taken by RoW	Constructing Contractor, MDF, Supervising Agency,

Biannual Environmental Monitoring Report

Disposal of construction wastes	work sites, road alignment, used quarries, camp sites	Observation	During Construction period, after completion of works at concrete site	Ensure pollution prevention and landscape protection;	Constructing Contractor, MDF, Supervising Agency,
Personal Protective equipment. HSE issues Organization of traffic by-pass	Construction site	Inspection	Unannounced inspections during works	Assure compliance with HSE requirements	Constructing Contractor, MDF, Supervising Agency,

Annex 2: Implementation report on the environmental impact assessment (EIA)/initial environmental examination (IEE)/Site Specific Environmental Management Plan (SEMP) mitigation requirements

Reference	Requirement	Action to date	Action required/comment
Air pollution (dust, emission)	<ul style="list-style-type: none"> ➤ Water spraying inside and around the construction sites; ➤ Using of only such vehicles and equipment that are registered, have necessary permits and maintained with relevant standards; ➤ Storages of construction materials are located far from residential areas; ➤ During the transportation of construction material the trucks are covered with special tarpaulins or other cover means to avoid spreading of fine aggregated material in the air; 	<p>Water spraying is conducted several times a day during dry days.</p> <p>All vehicles are maintained in good working conditions and have necessary permits.</p> <p>Construction materials are stored outside of residential areas.</p> <p>During the material transportation cars are covered and follow initially determined routes</p> <p>Wheels on machines used in construction activities are washed prior to leaving construction site</p>	<p>SEZA OHS specialist and HS&E manager are presented on construction site during all construction activities and monitor air pollution.</p> <p>DOHVA and Gamma Consulting are caring everyday monitoring of construction activities and pay special attention to air pollution (dust, emissions).</p>

Biannual Environmental Monitoring Report

	<ul style="list-style-type: none"> ➤ The transportation of materials are carried out by initially selected and determined routes and the speed of the trucks are limited; ➤ Wheels and undercarriage of haul trucks cleaned and washed prior to leaving construction site. 		
Noise and Vibration	<ul style="list-style-type: none"> ➤ Using of only such vehicles and equipment that are registered, have necessary permits and maintained with relevant standards; ➤ No noisy construction activities during the nights ➤ Usage of silencers, mufflers and acoustic shields on equipment ➤ Limitation of the number of machines used one and the same time ➤ Using vibration absorbing handles or rubber-type vibration insulating devices between the tool and the hands implemented by the contractor ➤ Using hearing protection for workers ➤ Fixing 'out-of-balance' items will reduce noise levels to a moderate magnitude ➤ Contractor should carry out noise and vibration monitoring on site. 	<p>All vehicles are maintained in good working conditions and have necessary permits.</p> <p>No construction activities are carried out during the night hours in adjacent to residential areas.</p> <p>Machine use is regulated to control noise and vibration.</p> <p>Workers safety measures are in place to prevent incidents</p> <p>Construction Company is regularly monitoring noise and vibration in construction corridor</p>	<p>SEZA HS&E Manager is on site and monitors noise and vibration due to construction activities.</p> <p>Gamma Consulting provides technical assistance to SEZA HS&E Manager.</p> <p>Supervision Company environmental manager is everyday monitoring construction process and provides detailed recommendations to maintain noise and vibration standards in line with Georgian regulations.</p>
Topsoil and subsoil	<ul style="list-style-type: none"> ➤ Top soil removal should be conducted in accordance with the top soil management plan, which was developed by Construction Company (June 10, 2017) and agreed with the Ministry of Environment and Natural Resources Protection 	<p>Construction Company is managing removed topsoil based on topsoil management plan agreed with the Ministry of Environment and Natural Resources Protection</p> <p>Topsoil protection monitoring activities are in place and monitored by Construction and</p>	<p>Gamma Consulting has developed topsoil management plan which was agreed with the Ministry of Environment and Natural Resources Management</p> <p>Construction Company SEZA is implementing soil</p>

Biannual Environmental Monitoring Report

	<ul style="list-style-type: none"> ➤ Contractor should minimize usage of productive agricultural land and after completion of civil works should convert them to their original state. ➤ Embankments should be monitored during construction for signs of erosion; ➤ Long-term material stockpiles should be covered to prevent wind erosion. ➤ The storage of topsoil in stockpiles should be conducted with relevant procedures and standards ➤ Topsoil stockpiles should be monitored and in case of any adverse conditions be identified corrective actions should be taken. ➤ The storage and monitoring of subsoil in stockpiles should be conducted also with relevant procedures and standards 	<p>Supervision companies</p>	<p>removal and allocation activities based on topsoil management plan</p> <p>SEZA HS&E manager and experts of Gamma consulting are monitoring soil removal and allocation activities and ensuring topsoil protection activities</p> <p>DOHWA environmental manager supervises all topsoil management activities and ensures compliance with topsoil management plan</p>
<p style="text-align: center;">Soil Contamination</p>	<ul style="list-style-type: none"> ➤ Inspection of vehicles should be carried out to ensure that there is no leakage of fuel and lubricating materials into the soil. ➤ Contractors should ensure the proper handling and storage of lubricants, fuel and solvents to prevent any leakage of these materials into the soil. ➤ All tanks should be placed in a bund according with relevant procedures and standards. ➤ Refueling process should be made according to established standards and procedures. 	<p>All vehicles are maintained in good working conditions and have necessary permits.</p> <p>All lubricants, fuel and solvents are managed properly to prevent any leakage of these materials into the soil.</p> <p>All tanks and refueling activities are managed based on safety and environmental protection procedures.</p>	<p>SEZA HS&E manager and experts of Gamma consulting are monitoring pollution and guide technical engineers of construction company in implementation of soil contamination prevention activities.</p> <p>DOHWA environmental manager supervises soil-monitoring activities and ensures compliance with Georgian legislation.</p>

Biannual Environmental Monitoring Report

	<ul style="list-style-type: none"> ➤ Equipment and storages should be isolated and guarded. 		
<p>Flora and Fauna</p>	<ul style="list-style-type: none"> ➤ Pre-entry survey should be conducted ➤ Exact demarcation of felling trees (to exclude cutting of other trees) should be made ➤ Each tree subject for felling should be marked, measured and described and the tree felling program should be agreed with the Tbilisi City Hall (Environmental Services), as well as Gardabani municipality ➤ The red data species extraction within the municipal land plots should be agreed with the Tbilisi City Hall, Gardabani municipality and Ministry of Environment and Natural Resources Protection. ➤ Felling of the common species of trees not included in the red data list should be conducted in accordance with the Law of Georgia “On special protection of green plantations and state forest fund within the boundaries of Tbilisi and its environs” (2000, as amended in 2015). ➤ The process of extraction of the red list trees should be proceeding according to special procedures and agreement with the MoENRP, determined by the law of Georgia on “the Structure, Incumbency and Rule of Conduct of the Government of Georgia”. 	<p>Gamma Consulting held pre-entry survey and tree demarcation activities.</p> <p>Tree cutting permits were obtained from the Ministry of Environment and Natural Resources Protection of Georgia, Tbilisi city hall and Gardabani municipality.</p> <p>Field survey has been conducted to confirm absence of bat colonies.</p> <p>Work of heavy machinery is monitored to prevent disturbance of local Fauna in Krtsanisi Forest Park</p>	<p>SEZA HS&E manager and experts of Gamma consulting are monitoring tree-cutting and construction activities to minimize impact on local flora and fauna.</p> <p>DOHWA environmental manager supervises tree-cutting activities and ensures compliance with environmental permits obtained from the Ministry of Environment and Natural Resources Protection of Georgia, Tbilisi city hall and Gardabani municipality.</p>

Biannual Environmental Monitoring Report

	<ul style="list-style-type: none"> ➤ Survey should be conducted to confirm the absence of nests of protected bird species within the limits of the construction corridor ➤ Survey should be conducted to confirm the absence of the bat colonies in the tree hollows to be cut down ➤ Limitation of the dust and emissions from construction machinery/vehicles especially near street trees and the parkland/green recreation area in the Krtsanisi Forest Park should be used to control and reduce risks and hazards 		
<p>Water resource and r. Mtkvari</p>	<ul style="list-style-type: none"> ➤ All operation of vehicles in the river should be prevented and if there is no alternative, inspection of vehicles should be required to ensure that there is no leakage of fuel and lubricating materials. ➤ The Construction Company should ensure the proper handling of lubricants, fuel and solvents. Fuel and lubricant storage tanks should not be located within 50m of any watercourse, well or dry gorges. All tanks should be placed in a bund of at least 110% of the tank's maximum capacity. If more than one tank is stored within the bund, the system must be capable of storing 110% of the biggest container's capacity or 25% of their total capacity, whichever is greater. The bund 	<p>All construction activities are precisely monitored in vicinity of River Mtkvari. Operation of vehicles in the river is restricted and special inspection is in place to prevent leakage of fuel and lubricants.</p> <p>All construction materials and machinery has been located 50 M away from surface of the water. All equipment and machinery has been maintained in good working conditions. The construction waste has been accumulated in special areas away from the water bodies and removed buy authorized personal only. On site environment specialists are maintaining visual monitoring for oils spills and equipment conditions, no accidents has been detected. Personal is being instructed on environment and safety issues rules and</p>	<p>Monitoring of the Surface water mitigation level is been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist</p> <p>Regular check-up and inspection;</p> <p>Laboratory control – as necessary (in case of oil spills). During this period no problems has been detected</p>

Biannual Environmental Monitoring Report

	<p>should be impermeable (e.g. concrete-lined), without drainage points or other breaches. Accumulated rainwater in bunds should be pumped out of the bund to either drains or the ground if uncontaminated. In case of fuel spillage the spilled fuel should be recollected and contaminated bund treated by the absorbents: sawdust, sand or straw.</p> <ul style="list-style-type: none"> ➤ All fuel / hydrocarbon dispensing nozzles should be of a drip control design and securely locked when not in use. ➤ No fuel storage or refueling of vehicles or equipment should be allowed within 100 m of any watercourse, water body, well, dry gorge or within any designated wetland area or aquifer. ➤ Vehicles should not be left without supervision during refueling process. All refueling operations on the working sites should use absorbent pads and/or straw to minimize spills, which should be put in place prior to the commencement of refueling operations. ➤ Ground water and surface water pollution risk should be reduced or eliminated in case of immediate removal of polluted ground. Soiled ground and absorbents should be removed, stored and treated as hazardous waste. ➤ In case of significant spill authorized and responsible person should be informed, works should 	<p>regulations.</p> <p>Emergency management plan is developed by Gamma Consulting and agreed with the Ministry of Environment and Natural Resources management where special attention is paid to River Mtkvari prevention from the pollution. EMP provides special procedures to be used during the emergency situations.</p>
--	---	--

Biannual Environmental Monitoring Report

	<p>be stopped till the elimination of pollution.</p> <ul style="list-style-type: none"> ➤ Refueling process should always be carried out with the correct equipment (i.e. nozzles of the appropriate size), and only by suitably trained and experienced refueling operators. Fuel supply equipment should be regularly revised to prevent leakage due to inappropriate condition of refueling equipment. ➤ Equipment and storages should be isolated and guarded to prevent pollution due to cases of stealing or vandalism. ➤ All mobile plant, including but not limited to cranes, compressors, generators, bulldozers, excavators etc. and storage tanks should be maintained and operated such that all leaks and spills of materials should be minimized. ➤ Daily plant checks (Vehicle Maintenance Procedure) should be undertaken to ensure no leaks or other problems are apparent. Vehicle maintenance, cleaning, degreasing etc. should be undertaken in designated areas of hard-standing, not over made unstable ground (embankments etc.). ➤ Water Tanks with sprinklers should envisage for watering roads and machinery maintenance. ➤ Maintenance points should not be located within 50m of any watercourse, well or dry gorge. The storage of potentially polluting 		
--	---	--	--

Biannual Environmental Monitoring Report

materials, refueling and maintenance of mobile plant within 50m of all watercourses/water bodies, dry riverbeds and within designated wetlands and aquifers should be prohibited.

- Erosion control measures should be applied during construction activities to prevent increased runoff into the watercourses.
- Contractor should plan all excavations, topsoil and subsoil storage so as to reduce to a minimum any runoff. Contractors should be required to organize and cover material storage areas and to isolate wash down. Where any area of the spread is at risk from silt pollution washing off into a watercourse of water body, effective measures should be put in place to ensure that such pollution does not occur. Wet cement and/or concrete should not be allowed to enter any watercourse, pond or ditch.
- Near the river bed Mtkvari in the vicinity of no more than 100 m. radius should be installed temporary fuel tank. The tank should be placed in a covered area, and located and designed in way to allow collection of accidental spilled liquid contaminants.
- Asphalt pavement activities should be conducted in dry days to avoid run off in the river
- Erosion control and pollution prevention measures should be planned for the site of

Biannual Environmental Monitoring Report

	<p>crossing the dry gorge with seasonal stream, in the area of planned bridge. Slope landscaping and vegetation should be envisaged and in addition installation of temporary berms and sediment traps should be required, in case if during construction erosion will be stimulated.</p> <ul style="list-style-type: none"> ➤ No fueling operations should be allowed near the dry gorge. ➤ Proper organization and design of the drainage channels and oil/grease separating simple water-treatment installations should be installed. ➤ Natural oil separator drainage system should be installed where it is considered appropriate and the contractor should elaborate this system. ➤ The Construction Contractor should take all measures to protect vegetation cover located on slopes near the riverbeds. This approach will contribute to minimization of river bank erosion risk. ➤ All construction activities near the riverbed should be planned during the low water season period in the river Mtkvari ➤ All the activities which require technical intervention in the riverbed should be planned out of spawning period. 		
<p>Hazardous and Non-hazardous Waste</p>	<ul style="list-style-type: none"> ➤ All wastes generated during project implementation phases should be manage in accordance with waste management plan that 	<p>Gamma Consulting has developed waste management plan in accordance to state regulations. Regular check-up and inspection is implemented by</p>	<p>SEZA HS&E Manager on every day basis is caring out inspection of waste management activities with special attention to hazardous waste.</p>

Biannual Environmental Monitoring Report

	<p>Construction Company has elaborated In May, 2017 and needs to be agreed with the Ministry of Environment and Natural Resources Protection</p> <ul style="list-style-type: none"> ➤ Disposal of the hazardous wastes also needs to be agreed with the MoENRP and local authorities and managed according to adopted waste management plan. ➤ The Construction Company should collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at the temporary storage sites and further at the locations approved by MoENRP or pass it to the licensed operator, having environmental permit on operation of the hazardous wastes. ➤ The Construction Company should take responsibility for the asbestos waste management. The certified company should be hired by Construction Company for proper management and safe disposal of asbestos waste according to existing acting legislation and good international practices. 	<p>Construction Company for proper waste management.</p> <p>Construction waste is accumulated on construction site in special isolated areas divided by hazardous, domestic and construction waste. Construction company has signed contract with the companies for waste removal. The waste is being removed from construction site buy authorized personal only in accordance of safety regulations.</p>	<p>DOHWA environmental manager supervises waste management in accordance to best international practices and Georgian legislation.</p>
Cultural heritage	<ul style="list-style-type: none"> ➤ In case of discovering any archeological sites or artefacts Construction Company should act according to elaborated cultural heritage management plan. 	<p>Cultural heritage management plan is developed by Gamma Consulting.</p> <p>Construction Company is implementing all activities in compliance with cultural heritage management plan.</p> <p>No archeological sites or</p>	<p>SEZA HS&E Manager on every day basis is caring out inspection construction activities to monitor cultural heritage discovery on construction site.</p>

Biannual Environmental Monitoring Report

		artifacts were found during the construction works	
Damage to existing infrastructure	<ul style="list-style-type: none"> ➤ The complete list of the utilities and infrastructure to be relocated or affected should be developed ➤ The Construction Company should be working closely with any utility company having their infrastructure located within the public right-of-way. ➤ Before construction is started the Construction Company should notify the utility companies of the proposed work area and should request that they mark the location of any types of equipment in the area. ➤ The Construction Company should establish the position of existing services such as pipelines, sewers, surface water drains, cables for electricity and telephones, overhead lines and water mains, before starting any excavation or other work likely to damage them. ➤ The Construction Company should arrange liaison with the appropriate authorities, the moving of or alterations to services such as pipelines, power and telephone lines, water mains, sewers and surface water drains which are affected by the works. 	<p>Construction Company has developed list of utilities and infrastructure to be relocated</p> <p>Before construction is started the Construction Company is notifying the utility companies about planned construction activities.</p> <p>All infrastructure in the construction corridor is reallocated or in the process of reallocation.</p> <p>Construction Company has establish and keeps active working cooperation with utility companies.</p>	<p>Construction company engineers are in active cooperation with utility companies owning infrastructure in vicinity of construction corridor.</p>
Community safety and traffic disruption	<ul style="list-style-type: none"> ➤ Design and construction works should be in compliance with the technical standards ➤ Emergency Response plan should be developed 	<p>Construction activities are carried out in line with safety technical standards.</p> <p>Emergency response plan is in place and followed by construction company workers.</p>	<p>SEZA HS&E Manager on every day basis is caring out inspection of construction activities and informs Road and Police departments of Georgia</p>

Biannual Environmental Monitoring Report

	<p>and agreed with the Ministry of Environment and Natural Resources Protection</p> <ul style="list-style-type: none"> ➤ Traffic Management Plan should be developed by Construction Contractor and agreed with the Road Department of Georgia and Patrol Police Department ➤ To avoid/minimize traffic disruption traffic management schemes should be applied ➤ The Construction Company should work in close cooperation with Road Department and Patrol Police Department to regulate traffic on the project site. ➤ Road vehicles should be equipped with sound signals and light signals ➤ Parking place should be arranged with relevant standards ➤ Road men should be provided with special uniforms and special footwear. 	<p>Traffic management plan is in elaboration process.</p> <p>Before initiation of construction activities Road and Patrol Police departments are notified to ensure safety procedures</p>	<p>about construction activities.</p>
Occupational health and safety	<ul style="list-style-type: none"> ➤ The Construction Company should perform works in accordance with labor protection and safety requirements as well as industrial sanitation requirements. ➤ The Construction Company should instruct the staff on safety measures prior to the commencement of works ➤ Workers should be using personal protection equipment during working period. Warning signs should be placed at the project area. 	<p>Health and Safety management plan is in elaboration process and will be in place from July 2017</p> <p>Monitoring of the labor safety issues are carried out by Construction Company HS&E Manager on every day basis;</p> <p>Workers are equipped with PPE equipment.</p>	<p>SEZA HS&E Manager on every day basis is caring out inspection of health and safety issues assisted by OHS specialist of SEZA</p>

Biannual Environmental Monitoring Report

Workers Camps	<ul style="list-style-type: none">➤ The construction camp should be equipped with necessary infrastructure.➤ Monitoring activities should be implemented by Environmental Specialists on the daily basis.		
---------------	--	--	--

Biannual Environmental Monitoring Report

Annex 3: Photos

<p>Photograph No. 1 – Tree felling</p> 	<p>Photograph No. 2 – ACM collecting</p> 
<p>Photograph No. 3 – Tree Transportation and storing</p>	<p>Photograph No. 4 – Excavating and transportation of unacceptable material from PK47+10-45+80</p>
	
<p>Photograph No. 5 – HSE Training for workers</p>	<p>Photograph No. 6 – watering for dust prevention</p>

Biannual Environmental Monitoring Report



Photograph No. 7 – Induction for tree cutters team



Photograph No. 8 – Attached warning signs



Refueling area



Temporary storage area for Hazardous waste

Biannual Environmental Monitoring Report



Temporary storage area for Hazardous waste



Topsoil storage area



Topsoil storage area



Biannual Environmental Monitoring Report

Annex 4: Example of Environmental Checklist

Documents and Facts to be Examined		Status				Comment
		Yes	Partially	No	N/A	
Permits, Contracts	The Contractor has a License for extraction of natural resources (including method statement)	✓				
	The Contractor has an environmental permit for production of construction materials (cement, asphalt, brick, etc.)	✓				
	The contractor has a license for tree felling (including red data trees)	✓				

1

	The Contractor has a permit for final disposal of garbage				✓	
	The Contractor has a permit for final disposal of construction waste	✓				
	The Contractor has a permit for disposal top soil and subsoil				✓	
	Conduction of HSE training for personnel	✓				
	The Contractor has executed the contract on the hand-over and disposal of hazardous waste (with the licensed organization)				✓	
Performance of Civil Works	The site is fenced and warning signs are arranged	✓				
	The construction works do not impede pedestrian and motor traffic, or the temporary detour routs are organized.	✓				
	The working hours are observed in the human settlements and their vicinity	✓				
	During the required temporary disruptions of water, power or gas supply, the customers are notified in advance	✓				

2

Biannual Environmental Monitoring Report

	The construction machinery and equipment is in good order (there is no leakage of fuels and lubricants, nor excess noise and emissions).	✓				
	The construction materials and waste are temporarily stored in the specific place on-site, designated for this purpose.				✓	
	All types of waste are stored in different containers with relevant signs.			✓		
	The construction waste is transported from the site on regular basis, to the officially designated (in writing) site.				✓	
	During transportation, the construction materials and waste are placed on the covered hood.				✓	
	The site is watered during the periods of intensive dust generation and dry weather conditions.				✓	
	The containers for collection of domestic waste are placed in the construction site/	✓				
	The construction camp is supplied with water and toilets in good sanitary condition.	✓				
	During excavation works, in case of any archeological chance finds, the works are	✓				

3

	suspended and the employer is notified in written form.	✓				
	Top soil protection	✓				
	Protection of trees	✓				
	Pollution prevention	✓				
Safety Measures	The workers use all personal safety equipments required for individual technological processes (hard hats, gloves, respirators, glasses, etc.)	✓				
	The sites are provided with the fire fighting and emergency medical aid kits.	✓				
Works' Completion	After completion of main works, the site undergoes final cleanup, harmonization with outward landscape and landscaping.	✓				
	After completion of the operations in the quarry or its certain section, the idle material is backfilled, compacted, terraced and harmonized with the landscape.				✓	

4