

# Post Construction Environmental Audit Report

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## Attachment 2

# Post Construction Environmental Audit Report

**Project Number: SUTIP1/C/QCBS/05(P42414/ICB/1-11)**

**Anaklia Coastal Improvement Project**

**Construction of Coastal Protection Facilities in Anaklia**

**GEORGIA: GEORGIAN SUSTAINABLE URBAN TRANSPORT INVESTMENT  
PROGRAM, Tranche 1**

**(Financed by the Asian Development Bank)**

**Prepared by:** Supervision Company Dohwa's Team Leader Choi Yong Jun

**Amended and Endorsed by:** Nino Nadashvili, Local Environmental Consultant for ADB Projects  
Municipal Development Fund (MDF), Environmental and Resettlement Unit  
Tbilisi, Georgia

January, 2018

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## ABBREVIATIONS

ADB	Asian Development Bank
CAS	Center of Archaeological Search of the Ministry of Culture
EA	Executing Agency
EARF	Environmental Assessment and Review Framework
EIA	Environmental Impact Assessment
EIP	Environmental Impact Permit
EMP	Environmental Management Plan
GIS	Geographical Information Systems
GoG	Government of Georgia
USIIP	Urban Sector Improvement Investment Program
IA	Implementing Agency
IEE	Initial Environmental Examination
SEMP	Site-Specific Environment Management Plan
MDF	Municipal Development Fund
MFF	Multi-tranche Financing Facility
MoE	Ministry of Environmental Protection
MoRDI	Ministry of Regional Development & Infrastructure
RAP	Resettlement Action Plan

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## 1. GENERAL INFORMATION

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### 1.1. Program Background

1. Upgrading and improvement of local transport and transport-related infrastructure plays a significant role in the development of Georgia 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 05 August, 2010 MFF - Sustainable Urban Transport Investment Program Tranche 1 Loan and Project agreements were signed between Georgia and Asian Development Bank. MFF-Sustainable Urban Transport Investment Program – Tranche 1 (SUTIP T1) includes (i) Transport Infrastructure Improvement; (ii) Institutional Capacity Development and (iii) Project Management Facility components.
3. The program will provide efficient, reliable and affordable urban transport infrastructure and services, thereby increase economic growth potential and competitiveness of urban communities, and improve livelihoods of over 1.5 million people (approx. 35% of Georgian population). The program 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 1 is Environmental Category B, as all subprojects under SUTIP 1 were classified as category B which will not have significant irreversible or permanent negative environmental impacts during or after construction and requires preparation of Initial Environmental Examination (IEE). The environmental categorization of subprojects was conducted using ADB's Safeguard Policy Statement (2009). Required environmental assessments of sub-projects (SPs) are conducted and IEEs are prepared in accordance with Environmental Assessment and Review Framework approved for SUTIP 1 in May, 2010 and updated in April, 2015.

### 1.2. Program Area and project overview

5. Sustainable Urban Transport Investment program Tranche 1 includes projects in the different municipalities of Georgia. Program aims efficient, reliable and affordable urban infrastructure development and service improvement. In effect, urban transport service will be improved, and the level of different types of public and social services will be increased.
6. Among the Sustainable Urban Transport Investment program Tranche 1 there are the following projects:
  - **Tbilisi Metro Line 2 and Creation of University Station;**
  - **Anaklia coastal improvement (Phase 1)**

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## Anaklia coastal improvement (Phase 1) - overview

7. Government of Georgia developed the captured project for Anaklia shoreline rehabilitation and further protection of the beaches against erosion by means of submerged hydro technical coast protecting structures. The project aimed 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.
8. 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.
9. Coastal protection structure of underwater breakwaters, according to project design, initially was composed with 6 units (phase 1) constructed from 5 and 10 Ton tetrapods. The space between one to another breakwaters units was 90m. The length of first underwater breakwater (from Enguri river mouth to Tikori river mouth direction) is 200m, the length of the second underwater breakwater is 300m. Therefore, total length of underwater breakwater is 500m. Length of artificial nourishment is 2,300m. Amount of Sand for phase 1 is 50,000m<sup>3</sup>. Total Width of artificial nourishment is 60m, from beach line to land side is 40m and forward to seaside is 20m. Slope of beach line will be composed with 1:20.
10. Initially the Construction Volume was different, but the Georgian government came to a decision to initiate construction of a deep sea port in Anaklia close to the project site. A risk of potential overlap of the two construction sites was apparent. Therefore the scale or even expediency of the coastal protection project was open to question. In March 2016 the Ministry of Economy and Sustainable Development of Georgia provided MDF with the final coordinates of the deep sea port, which demonstrated that the port was overlapping seven breakwaters (N 3,4,5,6,7,8, and 9) out of ten planned breakwaters (from both phase). As a result MDF took decision to remove four breakwaters (3,4,5,6,) from the scope of work of the present contract (phase 1) and continue the works only for the breakwaters N1 and N 2 and placing of sand on the beach part behind these breakwaters (approximately in front of Hotels and boulevard). The rest of the works under both phases was proposed to be cancelled, through contract amendment, as approved by the MDF Supervisory Board per meeting N66 on 18 April 2016.
11. The construction works under Phase I started on July 24, 2013. Significant delays have been experienced in the project implementation and mitigation measures had been taken and agreed between the Engineer, the Contractor and MDF. The original completion date of civil works for Anaklia Phase I, was on 24 April 2014. Since that the completion date was extended several times. MDF, Engineer and Contractor agreed to extend the contract up to November 18, 2015; after till 30 April 2016, afterwards - up to 30 June 2016, and finally- till August 2017. After expiring official agreed period June 30, 2016, according to the ADB's recommendation letter, the Client and the Engineer have discussed about the possibility to extend the Construction period till 31st of August 2017 with

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the specific conditions that Contractor has to follow. The works parts were finished on 31 August 2017. The Taking-Over Certificate was signed on 31 August 2017 as well, according to which the total amount of Construction Performed by the Contractor is GEL 9,216,440.84

12. On 1 September 2017 the MDF Committee agreed to terminate the Contract based on mutual agreement.

## 1.3. Implemented Construction activities

13. According to the statements of the Ministry of Economy and Sustainable Development of Georgia, part of the coast protection project site falls within the coordinates of Anaklia deep-sea port construction project area. Therefore, it was requested to consider the issue of suspending works in this section in conformity with the current law of Georgia. Following submission of refined coordinates of the port by the National Agency of State Property (N7/13284 of 21.03.2016), it was revealed that seven (N3, 4, 5, 6, 7, 8, 9) of ten breakwaters to be constructed under both project phases, have fallen within the Anaklia deep-sea port project coordinates. Due to reduced work quantities, amendments were introduced to Anaklia coast protection civil works contracts. Along with the works for arrangement of breakwaters through placing tetrapods in the sea, the Anaklia project design also envisaged casting concrete tetrapods and a total of 12 240 tetrapods were cast.
14. Total amount of actually produced T.T.P figures were taken from the initial construction documentation (work records) for phase I and Phase II, by month. Actually from the beginning of the Construction 8,612 units of 5 ton T.T.P were produced, among them for Phase I – 5,069 units and from Phase II 3543 units of 5 ton T.T.P. Also, 3,435 units of 10 ton T.T.P for phase I were produced.
15. According to the documentary inventory, during the construction period in the sea 1,926 units of 5 ton T.T.P are installed. (among them, phase I, underwater breakwater N6 – 578 units and N10 underwater breakwater – 1,348 units) also 200 units of 10 ton T.T.P. for underwater breakwater N1.

## 2. PART II: PROJECT ORGANIZATION AND ENVIRONMENTAL MANAGEMENT TEAM

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### 1.1. Agencies involved in investment program implementation

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16. 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.
17. 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 environmental impact assessment ("EIA") or Initial Environmental Examination (IEE), as applicable.

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18. 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 12 and currently consists of: Head of Unit (Former Head of the Unit - Giga Gvelesiani has left his position in November, 2017 and currently, Elguja Kvantchilashvili is appointed, as an acting Head), 4 environmental safeguards specialists, one social and gender specialist, 4 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.
19. 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 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.

## 1.2. Relationship with contractors, owner, lender etc.

20. As it was already mentioned above, Construction Contractor of the project is – Modern Business Group Ltd (Azerbaijan). Construction activities were supervised by the DOHWA Engineering Co., Ltd (Republic of South Korea). Construction Contractor company has one National Environmental Specialist on site (Zurab Revazishvili). Environmental issues at Supervision Company were handled by National Environmental Specialist - Revaz Gujabidze and International Environmental Consultant Irakli Kaviladze, who were mandated to track implementation of EMP/SSEMP by contractor, reveal any deviations from the prescribed actions, as well as identify any unexpected environmental issues, emerged at any stage of works.
21. Construction Supervision Company was responsible for supervision of all environmental issues during project implementation. Construction contractor was obliged to follow EMP and SSEMP good construction practice during construction activities. All environmental issues, arising from the construction activities were immediately brought to the attention of MDF's environmental 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. The construction contractor's Environmental specialist responsible for implementation of EMP/SSEMP, daily environmental monitoring and reporting.
22. Construction contractor was responsible to prepare monthly progress reports on SSEMP implementation, which was containing information on the main types of activities carried out during the reporting period, status of any clearances/permits/licenses which were required for carrying out

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such activities, mitigation measures applied, and any environmental issues that have emerged in relations with suppliers, local authorities, affected communities, etc.

23. Construction Supervision Company was preparing quarterly progress reports, which covered the implementation of the SSEMP, discrepancies from the SSEMP and list all HSE relevant incidents and accidents that occurred during the implementation.
24. MDF ensured availability of all environmental information and facilitates environmental supervision of the projects. The MDF, through its local environmental Consultant – Nino Nadashvili, reports to the ADB every 6 months on the status of environmental compliance of construction works by EMRs.

## 3. PART III: ENVIRONMENTAL AUDIT - GOALS AND METHODOLOGY

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### 3.1. Audit goals and objectives

25. This Post-Construction Environmental Audit Report is being prepared by Supervision Company Dowha's Team Leader Choi Yong Jun, with cooperation and assistance of MDF's local environmental Consultant Nino Nadashvili. The report was prepared in order .to comply with the 2009 ADB's SPS and Georgian legislation, including Safeguards Requirement and aims to identify past and present concerns from the production and business activities of Project Company that related to impacts on environment. The specific objectives of the audit can be summarized as follows:

- Determine and verify whether all environmental requirements, criteria and constraints, prescribed in IEE, SSEMP and the Concessionaire's Environmental Policy have been adhered to during the construction phase.
- Determine and verify whether the mitigation actions and rehabilitation requirements contained in the SSEMP have been appropriate and successful to prevent or control environmental pollution and/or damage.
- Ensure that an appropriate environmental monitoring and control program exists to follow up on mitigation and rehabilitation works completed during the construction phase.
- Ensure that appropriate environmental monitoring and control program exists for monitoring of all environmental aspects during the operational phase.
- To identify any shortcomings in the SSEMP and EMS system implemented during the construction phase and to recommend alterations to the EMS applicable to the operational phase.

### 3.2. Methodology

26. The compliance environmental audit has been done in several stages:

- **At stage one** so called desk-top audit was conducted and the available materials were studied. The following documents were studied and analyzed at the given stage:
  - Initial Environmental Examination (IEE) for the subprojects;
  - EMP/SSEMPs;
  - Monthly environmental monitoring reports prepared by CC; Quarterly Environmental Reports developed by the Supervision Consultant, Bi-Annual Environmental Monitoring Reports prepared by MDF's local environmental Consultant;



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- Records of environmental monitoring conducted by CC, SC and MDF. 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.
  - Check of the non-compliances and their statuses.
- **At stage two**, meetings with the Project participants with different degrees of responsibility for meeting the environmental requirements and monitoring were held. The meetings were organized with the following environmental specialist:
- Environmental Specialist of the CC;
  - Supervisor’s environmental specialist;
  - MDF’s environmental Consultant;
  - ADB’s RETA environmental Consultant.
- **At stage three**, visit to the site and collection of evidences was accomplished.
- Environmental monitoring started immediately after the commencement of civil works. Environmental safeguard monitoring was performed as it was required in the SSEMP/EMP.

## 4. PART IV: PROJECT FINAL ENVIRONMENTAL AUDIT and FINDINGS

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### 4.1. Environmental Management Plans

27. IEEs, including EMPs, were integral parts of the contracts and their implementation was mandatory for contactors. Contractor Company, as it was mentioned above, was submitting monthly progress reports to supervisor Company Dohwa and MDF. Monthly report included chapter on environmental performance. Consultant Company Dohwa prepared quarterly environmental report and submits to MDF on progress of the environmental management plan.
28. 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 draft version of SSEMP was prepared by the Contractor and sent to Supervision Consultant (SC) for endorsement in June 2014.
29. SSEMP for phase I has been updated by the Consultant Company and updated document was presented to the MDF in June, 2015. Updated document has been further reviewed and commented for improvement by the MDF’s Local environmental Consultant and ADB’s RETA8663 National Environmental Consultant.

### 4.2. Site Audit

30. Monitoring measures for Anaklia Coastal Improvement project included construction site supervision, verification of permits, monitoring of compliance of the contractor performance and specific

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monitoring of environmental impacts like noise, dust, sea water quality, soil contamination, sea biodiversity, landscape structure, construction waste, radiation, flora and fauna, water pollution and air emissions, etc conducted by Contractor's and Engineer's environmental management specialists.

31. During reporting period no construction works have been implemented.
32. There were no protected areas, wetlands, mangroves, or estuaries or archeological/cultural heritage within the project area. There was no land acquisition and resettlement issues involved. The nearest residential house was located in 300-400m distance from the working yard. In order to limit soil disturbance, the access to the site was limited to construction workers and the site was fenced.
33. Final environmental audit was conducted by Supervision Company's Dohwa's Team Leader Choi Yong Jun in December, 2017 using post-construction environmental audit checklist (see filled up checklist in **Annex 2**). Site inspection has been implemented at the camp site and tetrapods storing areas.
34. No adverse environmental impacts related to the construction works were noted or observed within the site audit.

## **Worker Camps**

35. The potential impacts related to the construction and operation of the camp could be summarized as potential damage of topsoil, contamination related to fuel storage and fueling operations, waste management, wastewater and sanitation.
36. Buildings existing at the camp site are still on place, as defect liability period is not completed yet. Also, tetrapods are still stored at the camp and its nearby areas and watchmen/guard is permanently on camp site.
37. There are no activities at the camp site, but considering the Defect liability period, Contractor has to keep the offices there during the defect liability period - until September 2018.

## **Waste management**

38. At construction site, produced waste was stored at special storing areas designated for hazardous, domestic and construction waste storage. The part of construction waste (inert materials) was used by contractor for secondary meanings. Regarding the hazardous waste, such as oil contaminated towels or oil contaminated soil, Contractor was accumulating them separately in special containers. Hazardous waste was removed from construction site by authorized personal only in accordance with safety regulations.
39. Contractor Company had relevant contracts with licensed companies for proper management and final disposal of waste. Construction company had signed contracts with following companies for waste removal. For hazardous waste: Ltd "Sanitari" (contract N2911-13) and "Sandasuptaveba"; For domestic waste: an agreement with Zugdidi municipality; Construction waste: "Georgian Solid waste management company". All contracts are already provided by previous EMRs.

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## Monitoring of air, noise, sea water

### Noise

40. The plan of transportation routes and timing were agreed with local Municipality and patrol police since the project has started. Wheels and undercarriage of haul trucks were checked and fixed to maintain good vehicle condition not to make any noise and not to disturb residential people, even though there are no residential people within 1km range.
41. Drivers were informed to limit speed to 20-25 km/h to avoid use of horn in the town. Local population was informed about project works. The Contractor was working during night time to catch up schedule but according to supervisor's instruction, materials were transported during the day time. According to the works schedule, not more than 5-6 trucks were working at the same time and the noise created from them were not exceeding the limitation.

### Air Quality

42. Dust was controlled through watering the access roads where driving could easily generate dust. During the transportation of construction material, the trucks were covered with special tarpaulins or other cover means to avoid spreading of fine aggregated material in the air and although, the transportation of materials were carried out by initially selected and determined routes and the speed of the trucks are limited. Wheels and undercarriage of haul trucks were clean and washed prior to leaving construction site.

### Sea Water quality and sea water turbidity

43. Marine works for excavation and placing stones for leveling bottom of the sea preparing for placing TTP, have been carried out with extreme care from point of view spills, water turbidity, labor safety, taking into consideration EMP and SSEMP requirements and regulations. Vehicles fueling place were located approximately 300 m far from sea shore, adequate lining of the ground by concrete and confinement of possible operation and emergency spills are provided.
44. Regular check-up and inspection was implementing for monitoring of sea water quality and sea water turbidity. During marine works - dredging, stone filling - works were monitored by the contractor's environmental specialist who was visually controlling sea water turbidity level, making test checks in every 4 hours. In case if the turbidity measured during marine works at a distance of 250 meters from the point of works exceeds the background turbidity by more than 250mg/l the Contractor was instructed to take suitable measures to reduce the turbidity. No deviations from the standards have been identified during measuring.

### Tetrapods

45. In connection with possible utilization of remaining tetrapods, the "State Construction Company" LTD has applied to the MDF requesting consideration of the issue of transferring the remaining 5-10 tn. tetrapods located in Anaklia to their company for their utilization under Sarpi-Kvariati shoreline (Cape Kalandere section) coast protection structure rehabilitation project. The MDF considered the named issue and by the follow-up letter expressed readiness to transfer the requested tetrapods to the company.

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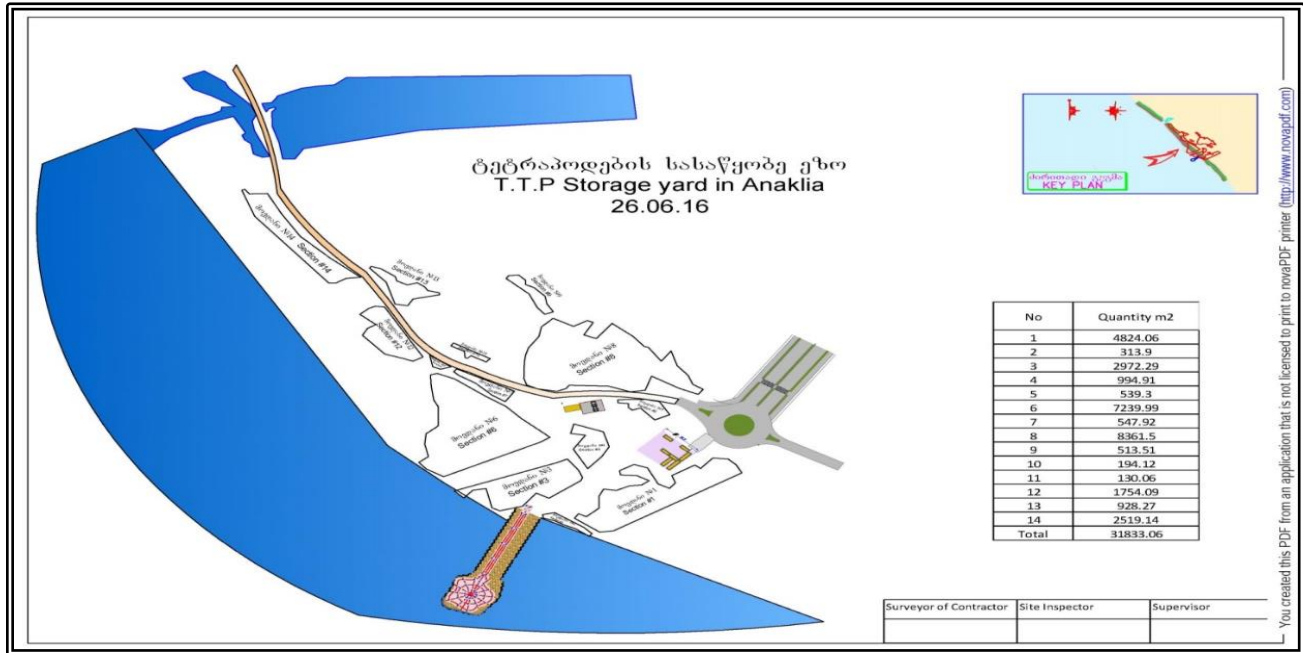
46. In their Aide Memoire of March 2017, the ADB states that they do not object to the suggestion of the Ministry of Regional Development and Infrastructure of Georgia regarding possible utilization of the remaining tetrapods for implementation of coastal protection activities in other erodible sections of the Black Sea coastline.

## Photos:



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## The storage area of TTP in Anaklia



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## 5. PART V– Conclusion and Recommendations

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47. As it was mentioned above, the “State Construction Company” LTD has applied to the MDF requesting consideration of the issue of transferring the remaining 5-10 tn. tetrapods located in Anaklia to their company for their utilization under Sarpi-Kvariati shoreline (Cape Kalandere section) coast protection structure rehabilitation project. The MDF considered the named issue and by the follow-up letter expressed readiness to transfer the requested tetrapods to the company.
48. Tetrapods officially have been transferred to the MRDI and from them to the State Construction Company in December, 2017.

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## Annex 1 - Monitoring Methodology

**Table 1: Environmental Monitoring Plan**

Object of Monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
1	2	3	4	5	6
Atmospheric air	Business yard, Construction sites	<ul style="list-style-type: none"> <li>• Visual control</li> <li>• Technical check-up of machinery</li> <li>• Laboratory Checks every three month.</li> </ul>	The monitoring of the Atmospheric Air quality is been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist. During the transportation operations, in dry weather on a periodic basis, technical check-up of machinery before works, during the installation of underwater breakwater. Laboratory test are taken in every three month. During this period no problems has been detected.	<ul style="list-style-type: none"> <li>• Ensuring compliance with the established quality norms of ambient air quality;</li> <li>• Minimizing the impact on the population health;</li> <li>• Ensuring the personnel’s safety.</li> </ul>	Construction Contractor
Noise	Business yard Construction sites The nearest receptor	<ul style="list-style-type: none"> <li>• Control;</li> <li>• Measuring;</li> <li>• Technical check-up of machinery.</li> </ul>	Monitoring of the construction process noise level is been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist. Regular control (particularly during much “noisy” operations);	<ul style="list-style-type: none"> <li>• Ensuring compliance with health and safety norms;</li> <li>• Minimizing the population disturbance;</li> </ul>	Construction Contractor

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Object of Monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
1	2	3	4	5	6
	(residential houses)		Measuring (In case of grievance) During this period no grievance or problems has been detected. ; Technical check-up of machinery before works. The nearest receptor (residential houses) is approximately 400-500 m away from construction site, drivers are maintaining the safe speed limits 30 kph on main roads and 10 kph on construction site, there for no noise complains has been detected.	<ul style="list-style-type: none"> <li>Ensuring comfortable working conditions for the workforce.</li> </ul>	



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Object of Monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
1	2	3	4	5	6
Soil	Construction camp - Material and waste storage areas; Construction sites	<ul style="list-style-type: none"> <li>• Visual control;</li> <li>• Supervision over the waste management;</li> <li>• laboratory control over the soil quality;</li> <li>• Technical check-up of machinery.</li> </ul>	Monitoring of the construction process soil mitigation level is been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist. Regular check-up; Inspection after completion of works; Laboratory control – as necessary (in case of oil spills). Material and waste storage areas are indicated and isolated. During this period no problems has been detected.	<ul style="list-style-type: none"> <li>• Preserving the soil stability and quality;</li> <li>• Minimizing the impact on other receptors depending on the soil quality (vegetation cover, holiday-makers, etc.).</li> </ul>	Construction Contractor
Increased seawater turbidity	Sites in the sea where the sand removed during the seabed treatment and	<ul style="list-style-type: none"> <li>• Visual control;</li> <li>• Turbidity analysis.</li> </ul>	Monitoring of the Increased seawater turbidity level is been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist. Permanent visual control; Identifying the degree	<ul style="list-style-type: none"> <li>• Maintaining ichthyofauna and microphytes.</li> </ul>	Construction Contractor

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Object of Monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
1	2	3	4	5	6
	from the seabed is to be placed.		of turbidity through analysis (in every 4 hrs. During the work). Upon intensive commencement of works in the sea, water testing has been conducted together with turbidity control, which should be constantly ongoing. During this period of time no increased seawater turbidity has been detected.		
Underground water	Construction camp - Material and waste storage areas; Construction sites  Gas station	<ul style="list-style-type: none"> <li>• Visual control of soil quality;</li> <li>• Laboratory control of soil quality (in case of spills);</li> <li>• Technical check-up of machinery.</li> </ul>	Monitoring of the underground water mitigation level is been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist.Regular check-up; Laboratory control as necessary (in case of oil spills). Material and waste storage, Gas station areas are indicated and isolated. During this period no problems or oil spills has been detected	<ul style="list-style-type: none"> <li>• Guaranteed protection of the underground water quality.</li> </ul>	Construction Contractor

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Object of Monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
1	2	3	4	5	6
Surface water: the Black Sea, the rivers Kitori and Enguri	Construction ground  Business yard	<ul style="list-style-type: none"> <li>• Visual control;</li> <li>• Supervision over the waste management and sanitary conditions.</li> <li>• Surface water laboratory control.</li> </ul>	Monitoring of the Surface water mitigation level is been carried out by contractor environmental specialist On every day basis and by supervising environmental specialist Regular check-up and inspection; Laboratory control – as necessary (in case of oil spills).Sea water Laboratory test are taken in every three month. During this period no problems has been detected	<ul style="list-style-type: none"> <li>• Protecting the water quality in the river;</li> <li>• Reducing the impact on the receptors (water biodiversity, etc.) depending on the river water quality.</li> </ul>	Construction Contractor
Negative visual impact	Construction camp - Material and waste storage areas;Construction sites	<ul style="list-style-type: none"> <li>• Visual control;</li> <li>• Supervision over the waste management and sanitary conditions.</li> </ul>	Monitoring of the negative visual impact has been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist Regular check-up and inspection; After completion of works. During this period no problems has been detected	<ul style="list-style-type: none"> <li>• No dissatisfied population;</li> <li>• No dissatisfied pedestrians.</li> </ul>	Construction Contractor

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Object of Monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
1	2	3	4	5	6
Waste	Business yard and/or adjacent area;	<ul style="list-style-type: none"> <li>• Visual control of the area;</li> <li>• Control over the waste management.</li> </ul>	<p>Monitoring of waste management issues has been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist. Regular check-up and inspection; After completion of works. Construction waste is been 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 been removed from construction site buy authorized personal only in accordance of safety regulations</p>	<ul style="list-style-type: none"> <li>• Protecting soil and water quality;</li> <li>• Reducing the risk of negative visual impact;</li> <li>• No dissatisfied population.</li> </ul>	Construction Contractor
Labor safety	Working ground.	<ul style="list-style-type: none"> <li>• Inspection;</li> <li>• Availability of personal protection equipment and periodic control over their good</li> </ul>	<p>Monitoring of the labor safety issues has been carried out by contractor environmental specialist on every day basis and by supervising environmental specialist. Before the works;Periodic control during the works.</p>	<ul style="list-style-type: none"> <li>• Ensuring compliance with health and safety norms;</li> <li>• Avoiding/minimizing traumatism.</li> </ul>	Construction Contractor

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Object of Monitoring	Control/Sampling Point	Technique	Frequency/Time	Target	Entity responsible for Monitoring
1	2	3	4	5	6
		maintenanc e; • Control over the meeting the requirement s for labor safety.			

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## Annex 2: Post construction Environmental Audit Checklist 1

Required mitigation measures of environmental impact	Measures implemented				Comment
	yes	partially	no	N/A	
Site territory fenced fully	x				The surface affected area totally fenced with a metal mesh.
Topsoil placed at original location				x	There was no need for this, there was hardly no mineral soil in the affected areas
Vegetation cover reinstated				x	
Construction waste and surplus/waste soil removed completely and disposed properly	x				The construction waste is completely was removed from the construction site. Non-compliance was closed.
Hazardous waste removed and disposed properly	x				The hazardous waste was removed.
Fuels and lubricants spills eliminated	x				Spills has been eliminated
Contractor equipment and machinery removed	x				The construction equipment and machinery was removed by the Contractor.
Demolition of camp site facilities			x		Camp site facilities are still on place until completion of defect liability period (September, 2018).
Tetrapods		x			Unused Tetrapods are stored at project area. In connection with possible utilization of remaining tetrapods, the "State Construction Company" LTD has applied to the MDF requesting

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					<p>consideration of the issue of transferring the remaining 5-10 tn. tetrapods located in Anaklia to their company for their utilization under Sarpi-Kvariati shoreline (Cape Kalandere section) coast protection structure rehabilitation project. The MDF considered the named issue and by the follow-up letter expressed readiness to transfer the requested tetrapods to the company. This issue is agreed with ADB.</p>
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