

Project Number: 43405 July - December 2013

March 2014

### Georgia: Urban Services Improvement Investment Program (Tranche 1)

Financed by the ADB

#### PREPARED BY "UNITED WATER SUPPLY COMPANY OF GEORGIA", LLC

Tbilisi, Georgia

# For: The Ministry of Regional Development and Infrastructure of Georgia and the Asian Development Bank

#### **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
GoG	Government of Georgia
USIIP	Urban Sector Improvement Investment Program
IA	Implementing Agency
IEE	Initial Environmental Examination
MDF	Municipal Development Fund
MFF	Multi-tranche Financing Facility
ΜοΕ	Ministry of Environmental Protection
DREP	Division of Resettlement and Environmental Protection
MoRDI	Ministry of Regional Development & Infrastructure
UWSCG	United Water Supply Company of Georgia

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# I. INTRODUCTION

- 1. The present Bi-annual Environmental Monitoring Report covers the time period from July 2013 till December 2013.
- 2. The Urban Services Improvement Investment Program was developed as the Government's response to the lack of adequate and/or safe water supply, sewerage and sanitation in urban areas of Georgia. This is intended to optimize social and economic development in selected urban areas through improved urban water and sanitation services, and is financed by the ADB through its Multi-tranche Financing Facility. The Ministry of Regional Development and Infrastructure is the Executing Agency and the United Water Supply Company of Georgia, LLC is the Implementing Agency of the Investment Program. UWSCG is a 100% state-owned company.
- 3. The Investment Program will improve infrastructure through the development, design and implementation of a series of subprojects, each providing improvements in a particular sector (water supply and/or sewerage) in one town. Subprojects will rehabilitate existing infrastructure and/or create new and expanded infrastructure to meet the present and future demand.
- 4. Tranche 1 of the Investment Program includes: Construction of Mestia Headworks (MES-01); Construction of Mestia Water Treatment Plant and Reservoirs (REG-02), Improvement of Water Supply Infrastructure in Anaklia, Kutaisi and Poti (REG-01) and UWSCG office building.
- 5. The following projects are financed under Tranche 1:

**MESTIA Water Supply Headworks** (Contract MES-01). The project comprises construction of a Tyrolean Weir as intake structure on Mestia Chala River for the capture of raw water. The discharge is estimated at minimum 1,000 liters/second in dry seasons. The location has been chosen for its altitude and the possibility to supply the water treatment plant, the adjoining reservoir and from there the largest part of the distribution network, by gravity. Apart from the intake, the scope of work comprises 10.75 km transmission lines to the site of Water Treatment Plant and a reservoir and the connection of this location to the distribution network.

The contract MES-01 was signed with Joint Venture of Dagi LTD – Georgia and Enguri 2006 LTD – Georgia (From 11 April 2013 the name of Enguri 2006 LTD has been changed into - New Construction LTD) on 10 October 2011 and scheduled Time for Completion was on 31 October 2013. The contract has has completed the works on the reservoir, the Intake, and is practically done with the transmission pipeline. The implementation of the LARP in a section of ca. 900 m. and the completion of the pipeline are scheduled to take place in March/April 2014.

**MESTIA Water Supply Facilities** (Contract REG-02). The scope of works includes: a new modular water treatment plant (WTP); the rehabilitation of Tsrniashi spring catchment; the rehabilitation of Lanchvali reservoir (1,000 m<sup>3</sup>); a new reservoir at Lanchvali (1,000 m<sup>3</sup>); a new high level reservoir (2,000 m<sup>3</sup>); a new reservoir at water treatment plant (2,000 m<sup>3</sup>); transmission pipes of approximately 9,200 meters.

The Contractor has to design and build a WTP with a treated water standard that complies with the European standard for the drinking water quality and is defined in the Council Directive 98/83/EC. The new WTP will have a design capacity of 80 l/s to serve the projected population in 2040. Some of the components (hydrocyclone, micro-/ultrafiltration, drinking, process and backwash water pumps) to be constructed under this contract will be for half of the design population in 2040 at this stage. Contract award is planned for the third quarter of 2014.

**KUTAISI, POTI & ANAKLIA Water Supply Infrastructures** (Contract REG-01). The scope of works includes improvement of water supply infrastructure in Anaklia, Kutaisi and Poti, in particular, reservoirs and pumping stations, transmission lines and distribution lines of water supply systems as well as a water treatment plant in Poti. The project envisages installation of water pipelines on 96 km. Concrete water reservoirs will be built on 5 places with total capacity of 35 000m3. The project also covers construction of 4 pumping stations (with total capacity of 4 516mph3) as well as construction of water treatment facility. Works worth of 26 422 935 GEL will be implemented in Kutaisi, as a result of which 14 000 households will receive 24 hour water supply whereas 36 000 household will see heir water supply services improved.

United Water Supply Company under the Ministry of Regional Development and Infrastructure of Georgia signed a contract (#UWSCG/ICB/CW-2013-REG-01) with an agreement with Spanish Cobra Instalaciones y Servicios. The Contract is effective since mid of Sept. 2013 and most activities since then were focused on pre-construction including surveying and designing the works as well as procurement of goods.

**TBILISI Office Building:** Detailed design for construction of new office building for UWSCG has been prepared and is financed by the GoG. IEE has been developed by UWSCG and approved by ADB. After completion of the IEE and detailed design bidding was announced. Bidding for office building was opened on December 16, 2013. 5 bidders submitted bids by the deadline of the Bid Opening. Within reporting period Bid evaluation was ongoing.

6. The Project's Environmental Impact Monitoring and Mitigation is carried out in accordance with the EMPs and SEMPs prepared by the Contractor and UWSCG. The construction activities affecting the environment are as follows:

- Contractor's mobilization and site installation
- Excavation works
- Removal of soil
- Backfilling of trenches
- 7. The following items are monitored during the implementation of the project: (only MES-01 and REG-01 is reported on in this report).
  - Air Quality
  - Noise
  - Reinstatement of top soil
  - Removal of vegetation/trees for construction

- 8. There are no protected areas, wetlands, mangroves, or estuaries. Trees, vegetation (mostly shrubs and grasses), and animals in the subproject sites are those commonly found in built-up areas. The geological structure of the area is stable and no potential land subsidence is foreseen.
- 9. The land acquisition and resettlement plan (LARP) was prepared by the United Water Supply Company of Georgia for MESTIA Water Supply Headworks (Contract MES-01). It was based on the detailed design and the requirements of the ADB Safeguards Policies Statement (2009).

### A. Construction activities and Project Progress during previous 6 months

- 10. **MESTIA Water Supply Headworks** (Contract MES-01): Overall physical progress of the work for Contract-1 is 97%. The detailed activities which were carried out by the Contractor in the past 6 months (July 2013 to December 2013) are described in the Contractor's and Construction Supervision Consultant reports. In summary during this period:
  - 3.56 km of water mains were installed (cumulative 9.79 km, left 0.96 km)
  - Reservoir's works were completed incl. internal coating and landscaping works
  - Intake works were completed
- 11. **KUTAISI, POTI & ANAKLIA Water Supply Infrastructures (Contract REG-01).** Overall physical progress of the work for REG-01 contract is 5%. The Contractor has not accomplished much in the major works, except with starting with earthworks, demolition works & pipe laying works for the water network in Kutaisi, and site clearance & fencing works). A total of 11,247m3 of earth material and 1,300 m3 of demolished debris have been excavated and removed to municipal dump sites during the reporting period. The Contractor has also continued doing topographical surveys and other preparatory works such as road opening, preparation of suite and excavation plans, preparation of structural and hydraulic designs for all works, procurement of goods (pipes, etc.) and arrangement for sub-contracting for all installation works.

12. One Site-Specific Environmental Management Plan (SEMP) have been prepared by the environmental specialist of Contractor (Contract REG-01) before actual construction activities start at Vajha-Pshavela Reservoir in Kutaisi. SEMP for Vajha Pshavela is endorsed by Supervision Consultant, and approved by UWSCG.

SEMP	Status
Nabada /Poti	Submitted, under final revision
Darcheli /Anaklia	Submitted, under final revision
Kladiasvili reservoir/pump station site	In progress, excepted delivery Jan. 2014
Tetramista reservoir	In progress, expected delivery in Mar. 2014
TV Tower reservoir	In progress, expected delivery in Apr. 2014

The status of SEMP preparation under other sites of this Contract REG-01 is as follow:

#### B. Environmental Management Team

#### (A) Agencies Involved in Investment Program Implementation

- 13. Following agencies are involved in implementing the Investment Program: (i) Ministry of Regional Development and Infrastructure (MoRDI) is the Executing Agency responsible for management, coordination and execution of all activities funded under the loan. MoRDI has overall responsibility for compliance with loan covenants.
- 14 United Water Supply Company of Georgia (UWSCG) is the project Implementing agency, which is responsible for administration, implementation (design, construction and operation) and all day-to-day activities under the loan. An Investment Program Management Office (IPMO) is established within the UWSCG for all Investment Program related functions. The IPMO, which is the Project Management and International Relations Department at UWSCG will coordinate implementation of subprojects across all towns, and ensure consistency of approach and performance.
- 15. The UWSCG created a Division of Resettlement and Environmental Protection under the Design Department. Mr. Beso Nibladze is Head of the Division. UWSCG/DREP employs Mr. Badri Tsatava on the position of senior environmental specialist. UWSCG/DREP is responsible for monitoring of EMPs under the each subproject and implementation of mitigation measures in compliance with environmental safeguards requirements.
- 16. An environmental specialist (ES) Ms. Ketevan Chomakhidze is contracted by UWSCG to support DREP in USIIP programs implementation in compliance with the, ADB Safeguard Policy Statement, 2009 and National Legislation.
- 17. The tasks of ES, among of other responsibilities include: Providing day-to-day guidance and advice on environment safeguard compliance issues for the DREP; Screening for the presence of rare, threatened, or endangered species, and other ecologically-sensitive habitats and related issues; Identifying socio-cultural and economical characteristics, including identification of possible cultural heritage and archaeological sites, and management of associated impacts; Undertaking consultations with affected people and stakeholders in the project area during the environmental assessment study to explore

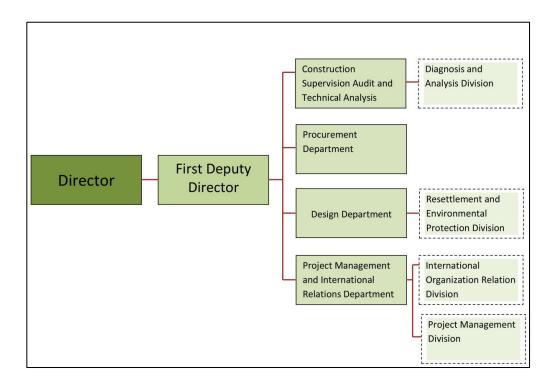
their perceptions, suggestions and acceptance of the project, and the preparation of a record of the public consultations; preparing of Bi-annual Environment Monitoring Reports for all projects under the Investment Program.

- 18. UWSCG has contracted Design Consultant Kocks to assist the Implementing Agency in conducting all activities (planning, design and contracting), in compliance with the EARF, ADB Safeguard Policy Statement, 2009 and National Legislation. In particular, undertake the IEE/EIA study to assess the direct and indirect environmental impacts of the project; prepare the IEE/EIA report in accordance with ADB's Safeguard Policy Statement (2009); prepare Environmental Management Plans; conduct formal public consultations with affected people; integrate construction related measures including EMP into contract documents.
- 19. UWSCG as responsible IA for the project recruited a Supervision Consultant (SC) Eptisa. The national and international team of SC assists UWSCG in conducting all activities during the construction of infrastructure, in compliance with the EARF, ADB Safeguard Policy Statement, 2009 and National Legislation, among other tasks including: monitoring of implementation of EMPs and mitigation measures by contractor; identifying remedial actions for unanticipated impact; preparing reports on implementation of EMP and its effectiveness. SC employs an experienced Environmental Management Specialist (EMS) Mr. Irakli Legashvili. The main task of EMS is to conduct routine observations and surveys of subproject's sites, and prepare information on the quarterly bases that is part of SC quarterly progress reports.
- 20. The SC also provides capacity building training to contractor staff for management and operation for the investment program.
- 21. UWSCG selects contractor for construction activities. Contractor is responsible to implement all mitigation measures during construction that will be monitored by the Supervision Consultant and UWSCG/DREP.
- 22. The Contractor to fulfill its obligations employs an Environmental consultant responsible for developing and implementing the construction phase EMPs. Contractor's environmental specialist ensures that the site specific EMPs (SEMPs) are prepared and implemented. SEMP is endorsed by SC and approved by UWSCG.
- 23. Environmental management organization is shown in Figure 1 and Figure 2.

# (B) Structure Diagrams of the Project's Environmental Management System

#### Figure 1.

Structure Diagram of the Environmental Management Unit of UWSCG



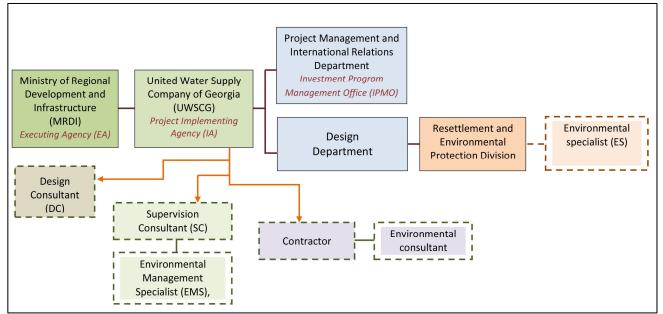


Figure 2. Structure Diagram of the Agencies Involved in Investment Program Implementation

# (C) Awareness and trainings

24. Environmental safeguards training course on "Improving of Environmental Safeguards in Central and West Asia" was conducted on July 1-2, 2013, by Ltd "Eco-Spectri" in Tbilisi. Training was financed by ADB. The main objectives of the training course included: ability to incorporate environmental management requirements into tender and contract documents, ability to prepare and assess site-specific environmental management plans (SEMPs). UWSCG/DREP and Eptisa's environmental team, contractors' (LTD New Construction, Cobra) environmental personal attended the training.

- 25. Three environmental trainings courses were conducted by Eptisa, in close collaboration with UWSCG/environmental specialist during the reporting period in mid August and early November. Trainings were attended by staff of contractors, including site engineers, environmental specialists as well as representatives of UWSCG/DREP. The purposes of these trainings were to introduce new rules in environmental safeguards (developed by ADB), in particular, to prepare Site-Specific Environmental Management Plans and environmental monitoring plans. Training agenda, list of participants as well as photos are attached to the proposed EMR (see Annex B).
- 26. Overall awareness on Mes-01 subproject outcomes and benefits remains limited since no awareness activities have been carried out from the beginning of the project. The awareness campaign is scheduled to be implemented during Spring 2014. Department of Public Relations of UWSCG will be fully involved in Public Awareness process. Public Awareness campaign will be carried out based on the Public Outreach Strategy prepared by SC.

#### Grievance redresses mechanism (GRM)

- 27. Implementation of grievance redress mechanism is clearly defined in approved IEEs under USIIP. The grievance redress mechanism implementation includes the following main steps: structure of GRM implementation of operation; administrative and functional distribution of responsibilities; clear steps on information (complaints) treatment and flow within UWSCG and ADB.
- 28. UWSCG on its part, in responsible to provide a direct channel to the affected and concerned citizens for approaching project authorities and have their grievance recorded and redressed in an appropriate time frame.
- 29. The DREP at the head office of UWSCG is available for the local complaint cells for establishing direct links to relevant environmental authorities.
- 30. No complaints by local population were received during the reporting period.

#### C. Project Organization

31. Project organization for the awarded contracts listed above is given in the table below.

Contract #	Employer	Contractor	
Contract-1	UWSCG	Joint Venture of Dagi LTD - Georgia and	
UWSCG/ICB/CW/2011-		Enguri 2006 LTD – Georgia (From 11 April	
MES-01		2013 the name of Enguri 2006 LTD has	
		been changed into - New Construction LTD)	
Contract Number:	UWSCG	Spanish Cobra Instalaciones y Servicios SA	

UWSCG/ICB/CW-2013-REG-	
01	

#### II. ENVIRONMENTAL MONITORING

- 32. During the July-December 2013 period no complaints received from the local residents, for the respective Contracts mentioned in Para. I.
- 33. Several joint site visits had been carried out by DREP and the representatives of the local service centers of UWSCG. Environmental Specialists of "New Construction" and Cobra carried out the regular monitoring of the construction sites.
- 34. Independent on-site monitoring of the EMPs has been undertaken by environmental specialist of Eptisa, who visited the site regularly.
- 35. The supervision of implementation of EMPs had been carried out by the environmental specialist of UWSCG on a regular basis as well.

#### A. Air quality

#### **MESTIA Water Supply Headworks (Contract MES-01):**

- 36. Material (aggregate, sand and landscape material) was brought to the site when required. Construction works were completed as per agreed schedule by Contractors.
- 37. Site clearance and reinstatement after backfilling trenches is completed at all sites, including at reservoir (Zarghasi site) and along the transmission sections except for incomplete final section along LARP corridor (road opening to start when LARP implementation is completed during Spring 2014)
- 38. In order to limit soil disturbance, the access to the site was limited to construction workers and the site is fenced; however, in some cases site had not been cleaned and maintained properly. After the several verbal instructions of Environmental Team situation was improved.
- 39. Dust was controlled through watering the roads where driving could easily generate dust. Tarpaulins were used to cover loose materials that were transported to and from the site by trucks.

#### B. Noise

40. Drivers were informed to limit speed 20-25 KPH to avoid use of horn in the town. No nighttime activities took place. Local population was informed about the subproject works

# C. Removal of vegetation/trees for construction

- 41. Tree cutting had been avoided by a small change of layout plan/alignment; however, several bushes or vegetation cover were removed in the reporting period.
- 42. Bushes and grasses have been cleared only in actual construction area; all other preparatory works (material storage) has been conducted on barren lands where there was no vegetation.

## D. Baseline Data

- 43. No water sampling and analyses program was carried out during the reporting period for Contract MES-01; however, it is suggested that such program is implemented at the Tyrolean weir intake (Mestiachala river) before commissioning of the system during the next period; Program to include microbiological and physical-chemical analyses. Results should be compared to the baseline data established by Kocks at the design stage and compared also with the Georgian and European guideline values. Also a separate program of sampling and analysis should be established after the chlorination station (at Zarghashi site) and at Lanchavil reservoir site (final recipient) by measuring residual chlorine level.
- 44. Decision on the use of the Tsrniashi spring using the existing transmission pipeline (and new section up hill to Zarghashi reservoir under Contract REG-02) should be made also during the next period based on a new sampling and analysis program; According to Mestia Service Center, the use of each source will be made alternatively (6 months during summer months with Tsrniashi spring and 6 months during winter period with Mestiachala river). This can only be authorized if new analysis shows no risks to public health.

# KUTAISI, POTI & ANAKLIA Water Supply Infrastructures (Contract REG-01).

- 45. Within the reporting period, in order to develop baseline data under the REG-01 project, Contract is prepared for signing between the Contractor and the National Environmental Agency. Baseline data will be integrated into the next (January-June, 2014) Environmental Monitoring Report. Until that monitoring is limited to inspections to verify compliance with mitigation requirements.
- 46. The parameters to be measured for the baseline data at the construction sites are as follows: dust, vibration, carbon monoxide, nitrogen dioxide, sulfur dioxide, gamma radiation, el-magnetic field radiation and noise. The measurements will be executed at each construction site (Vasha Psavela, Tetramista, Kladiashvili, TV Tower, transmission, network ). The frequency of measurements is defined to be bi-annual based on agreement between contractor and the Agency. The specific plan for measurement is provided paragraph 57 below.
- 47. The methodology for the measurements will be defined by the National Environmental Agency that is leading National institution responsible for different parameters measurement. The measurements will be done in accordance with the standards and

procedures that are in compliance with national requirements.

## III. ENVIRONMENTAL MANAGEMENT

#### A. Site Inspections

48. UWSCG and Eptisa visited the project sites regularly and instruct and guide Contractor on Environmental Safeguard issues. Contractor's environmental specialist performed daily site inspections and monitor implementation of mitigation measures per EMPs.

### B. Reporting

49. Eptisa develops quarterly progress reports, including environmental monitoring and submits to UWSCG. The UWSCG/environmental specialist prepares bi-annual and annual environmental monitoring reports based on the information submitted by the Contractor and Supervision Consultant and the regular monitoring of the sites.

### C. Corrective Actions

- 50. Several corrective actions were recommended during the reporting period of July December 2013 by the environmental specialist of Eptisa and UWSCG/environmental team. The actions are summarized in the list of inspection notes (See Annex C).
- 51. Annex A provides information about the assessment of the implementation of mitigation measures against EMP. Inconsistency of the implementation of EMPs were corrected by the Contractor on the basis of corrective actions recommended by Eptisa and UWSCG.

# D. Note on Air and Noise Quality Monitoring (for MES-01)

52. No baseline data is provided in IEE of Mestia headworks project for air and noise. Project has modest impact on environment that may be easily mitigated, therefore monitoring was limited to inspections to verify compliance with mitigation requirements.

#### **IV. CONCLUSIONS AND RECOMMENDATIONS**

- 53. As presented in this report, tranche-1 of this Investment Program is being implemented in compliance with the ADB Safeguard Policy Statement, 2009, National Legislation and overall EARF.
- 54. Necessary instructions have been given to the Contractor by UWSCG and SC to follow the Environmental Management Plan for Reg-01 project.

## V. ACTION PLAN FOR THE NEXT PERIOD

- 55. Carry out public awareness campaign in Spring 2014 under contract MES-01 by SC and UWSCG.
- 56. Finalize SEMPs under Reg-01 project, as per following schedule:

Kladiasvili reservoir/pump station site	Jan. 2014
Tetramista reservoir	Mar. 2014
TV Tower reservoir	Apr. 2014

57. Conduct monitoring of environmental quality at each construction site (see paragraph 46). The specific plan for measurement is provided in the table below:

Parameters	Baseline measurement	Bi-annual measurement
Dust	April 2014	September 2014
Vibration	April 2014	September 2014
Carbon monoxide	April 2014	September 2014
Nitrogen dioxide	April 2014	September 2014
Sulfur dioxide	April 2014	September 2014
Gamma radiation	April 2014	September 2014
El-magnetic field radiation	April 2014	September 2014
Noise	April 2014	September 2014

58. Conduct Post construction audit by the independent environmental Audit for Mes-01 project and audit results reflect in the next EMRs.

# ANNEX A: MONITORING DATA

### Mes-01

No	Impact	<b>Required</b> actions	Corrective actions	Status
1	Impacts caused by excavation and generation of waste soil	other construction activities or	The majority of works is accomplished but still there are some places at the construction sites where reinstatement activities are not completed and some additional works has to be done by graders. In some cases waste soil is used for road surface covering works.	Corrected partially
2	Loss of top soil	Top soil shall be removed and stored separately during excavation work, and after construction the same soil shall be replaced on the top	After the instructions given by the EPTISA and UWSCG, reinstatement and disposal of top soil at the place of reservoir has been carried out by contractor. Reservoir site is properly fenced and lighted as well.	Corrected

3	Erosion due to excavation/refill ing; Removal of vegetation/tree s for construction	Avoid tree cutting by small change of layout plan/alignment; In unavoidable cases, plant two trees of same species for each tree that is cut for construction; No trees shall be removed on the slopes; clearing of shrub, bushes and grass shall be limited to actual construction area only; Proper compaction of refilled soil: the material shall be refilled in	area only; no clearance was allowed for material and waste	Corrected to some extend

		layers and compacted properly layer by layer;		
4	Impacts due to construction in the river	Schedule the construction work during low flow season avoiding rainy and summer seasons; Water flow shall not be interrupted completely/diverted; Enclose the construction area (e.g., with sand bags) so that water does not enter construction site; Water collected in the trench shall be disposed off safely so that silt water does not get mixed with the river water.	The main construction works are completed. There rate not observed significant impacts to the river and its quality	Mainly corrected
5	Impact on surface water bodies due to construction under rain	Avoid scheduling excavation work during the rainy season; In unavoidable circumstances, protect open trenches from entry of rain water by raising earthen bunds with excavated soil; Confine construction area including the material storage (sand and aggregate) so that runoff from upland areas	During rainy periods excavation works were interrupted; In several cases trenches were left open for some periods until testing took place.	Corrected in some places, still pending in others.

		doesn't enter the site; Ensure that drains are not blocked with excavated soil.		
6	Impact on air quality due to dust generation	Bring the material (aggregate/sand) as/when required; Ensure speedy completion of work and proper site clearance after completion; Use tarpaulins to cover loose material that is transported to and from the site by truck; Control dust generation while unloading the loose material (particularly aggregate and sand) at the site by sprinkling water/unloading inside barricaded area; Clean wheels and undercarriage of haul trucks prior to leaving construction site;		Corrected to some extend
7	Disturbance to business, people,	Inform all residents and businesses about the nature and duration of any work well	to the local residents verbally	Corrected

activities and socio-cultural resources due to construction work	in advance so that they can make necessary preparations; Provide wooden walkways/planks across trenches for pedestrians and metal sheets where vehicle access is required; Increasing workforce to complete the work in minimum time in the town.	construction activities. For crossing trenches by vehicle and people, metal or wooden temporary planks were used at the applicable places.	
8 Disturbance/nui sance/noise due to construction activity including haulage of material/waste	consultation with Municipality and Police; Schedule transportation activities so as to avoid peak traffic periods;	systematically agreed with Municipality/Police although preliminary discussions took place. At present majority of activities are accomplished and the intensity of transport movement	Partially corrected

			activities were carried out.	
9	Socio-economic benefits from employing local people	To the extent possible, labor force must be drawn from the local community; Contractor should source at least 50% of unskilled labor force from local communities.	Due to the fact that the local population has no desire to work on the construction only 20-25% of the local population had been employed in the works.	Corrected to some extend
10	Safety risk for local residents and workers	Exclude public from the site – enclose construction area, provide warning and sign boards, security personnel; Provide adequate lighting to avoid accidents; Ensure that all workers are provided with and use safety paraphernalia – helmets, hand gloves, boots, masks, safety belts (while working at heights, etc); Maintain accidents records and report regularly.	In some cases open trenches (transmission pipeline) were not provided with safety signs (special warning lines) to prevent accidents; Sign boards have been installed by Contractor as e result of repeated instructions by EPTISA and written instructions of environment specialist of UWSCG; Despite the fact that all labors are equipped with PPE in some cases workers do not wear it. No accidents were reported; Territory for storage of equipment and materials was fenced and had 24 hour security	Corrected in some places, still pending in others.

			aftertheseveralverbalinstructionsmadebyEptisaandUWSCG;Specialwarning/informationalsignsisfinallyinstalledattheentrancethesiteaswell.	
11	Historical, archeological chance finds during excavation	In case of suspected archeological find, contact archeological authority and take any action they require to ensure its removal or protection.	historical or archeological finds	Corrected

# Reg: 01

No	Impacts	Required Activities	Corrective Actions	Status
	Kutaisi			
1	Loss of top soil; Damage to vegetation beyond clearing limits.	Top soil shall be removed and stored separately during excavation work, and after reservoirs construction the same Topsoil shall be replaced on the top. Topsoil should be stored properly (maximum height 2 m. with 45 <sup>o</sup> sloped sides); Limits of clearing will be marked with high visibility means.	Already removed top soil is stored in the preliminary dedicated place, however as of observations on site there is some mixture of top soil and waste soil	Partially corrected
2	Dust Generation	Cover or damp down by water spray on the excavated mounds of soil to control dust generation; Bring the material (aggregate and sand) as and when required; Ensure speedy completion of work and proper site clearance after completion; Damp down unsatisfied /bad condition roads to avoid dust generation while using for transport of waste/material; Use tarpaulins to cover loose material that is transported to and from the site by truck; Clean wheels and undercarriage of haul trucks prior to leaving construction site;	Tarpaulins are used to cover loose material that is transported by truck Mostly transport speed limit are considered for minimizing of dust generation Access in the work area except workers is not allowed to limit soil disturbance and in some cases access is prevented by fencing	Corrected to some extend

3	Impacts due to	Utilize surplus/waste soil for beneficial	Surplus/waste soil is transported to	Partially corrected
	excavation and	purposes such as in construction or to	the preliminary selected remote site	
	generation of	raise the ground-level of low lying sites.	and local landfill	
	surplus soil	Dispose extra waste soil at Local Municipal Landfill in correct manners (slope should be 60 <sup>0</sup> )	In the places with enough space availability refilling materials are disposed as a piles next to trenches As of preliminary discussion with the Municipality it is foreseen to use surplus/waste soil for municipal purposes like repairing of roads and low level sites rising	
4	Impact by	Set up Temporary Storage Area on site;	After the instructions specially	Corrected to some extend
	Incorrect waste	Transfer waste to Central Waste	dedicated containers were installed	
	(haz, inert,	Disposal Area; Personnel to be	for non-hazardous and hazardous	
	general)	responsible for hazardous waste proper	waste at the sites	
	handling and	segregation, collection and storage;		
	storage,	Install compliant, roofed site washout		
	transport,	pit and separate drainage for surface		
	disposal.	water; Dispose of washout wastes		
		correctly after drying		
5	Impact on air	Ensure that all equipment & vehicles	During the construction well	Partially corrected
	quality due to	used for construction activity are in	operational equipment and vehicles	
	emissions from	good condition and are well maintained;	are used by contractor	
	construction	Ensure that all equipment & vehicles		
	equipment/vehi	confirms to emission and noise norms		

	cles			
6	Removal of vegetation/trees for construction	Avoid tree cutting by local and small change of layout plan/alignment; In unavoidable cases, plant four trees of same specie for each tree that is cut for construction; Bushes and grasses shall be cleared only in actual construction area all other preparatory works (material storage) shall be conducted on barren lands where there is no vegetation;	during reporting period however	Mainly Corrected
7	Erosion due to excavation/refill ing	No trees shall be removed on the slopes; clearing of shrub, bushes and grass shall be limited to actual construction area only; no clearance is allowed for activities such as material/waste storage, concrete mixing, etc. Ensure proper compaction of refilled soil and there shall not be any loose soil particles on the top; the material shall be refilled in layers and compacted properly layer by layer	In most cases refilling and compaction is done according instructions to avoid erosion processes	Mainly Corrected
8	Impact on Traffic	Informing all residents and businesses about the nature and duration of any	Local residents and nearby private and public institutions are informed	Mainly corrected

		work well in advance so that they can make necessary preparations if necessary; Providing wooden walkways/planks across trenches for pedestrians and metal sheets where vehicle access is required; Increasing workforce to complete the work in minimum time in these stretches; Initial situation of private proper ties has to be re-established after construction	activities schedule	
9	Cultural heritage Disturbance to cultural resources	Stopping work immediately to allow further investigation if any finds are suspected		Mainly corrected
10	Disturbance to business, people, activities and	Management, Parents of children and	1	Mainly corrected

	socio-cultural resources due to construction work	duration of any work well in advance so that they can make necessary preparations if necessary; Install additionally hard barricade at the School Building site. Post the signs with hazards coming from the construction site; Provide wooden walkways/planks across trenches for pedestrians and metal sheets where vehicle access is required; Increasing workforce to complete the work in minimum time in the town	police before construction works start In most of cases crossing trenches by vehicle and people the metal or wooden temporary sheets are used at the applicable places	<image/>
11	Disturbance/nui sance/noise/vib ration due to construction activity including haulage of material/waste	Plan transportation routes in consultation with Municipality and Police; Schedule transportation activities by avoiding peak traffic periods; Use tarpaulins to cover loose material that is transported to and from the site by truck; Control dust generation while unloading the loose material at the site by sprinkling water; Educate/Train drivers: speed limit between 20-25 km/ph within residences and avoid use of horn in the town; Provide prior information to local	Local residents and nearby private and public institutions are informed verbally about constructions activities schedule Construction activities schedules are adjusted at maximum possible way to the requirements of local residents and institutions Night time construction activities are not observed	Partially Corrected

		peopleaboutwork;Nonighttimeconstructionactivitiesincludingmaterial/wastehaulage;Earmarkparkingplaceforconstructionequipment and vehicles when idling; noparking shall be allowed on the roads,that may disturb the traffic movement.		
12	Socio-economic benefits from employing local people in construction work	To the extent possible labor force must be drawn from the local community;	60-70% of the local population is employed in the works	Corrected
13	Safety risk for public and workers	Exclude public from the site – enclose construction area, provide warning and sign boards, security personnel; Provide adequate lighting to avoid accidents; Ensure that all workers are provided with and use appropriate Personal Protective Equipment - helmets, hand gloves, boots, masks, safety belts (while working at heights etc.); Maintain accidents records and report regularly; Instruct and train site staff in Site Safety Requirements; Designate experienced person for supervision of site safety requirements.	At most of sites there is observed existence of safety signs around to open tranches, however there are sites observed without safety signs In most cases the workers wear PPE Within reporting period no accident was reported Storage area is fenced and has security At the most of construction sites some restriction access measures including signs are established	<image/>



14	Impact on surface water bodies due to construction under rain	during the rainy season; Complete pipe	During raining time excavation works are interrupted according to relevant instructions Some trenches were observed to be left open for several days for the reason to undertake technical tests of pipeline Because of delays of filling tranches there were cases of over-flooding during rain time, situation was improved after the instructions given by Eptisa and UWSCG	Partially corrected
15	Impacts due to import of labor and establishment of temporary labor camps	housing facilities so that there are no impacts and conflict with the local	During reporting period no new camps /accommodation were built The labor personal live in hired local resident houses and use that houses for communal services including sanitation	N/A

16	Cumulative impacts – repeated disturbance to roads and people	Harmonize the schedule of construction works in harmony with other ongoing works; Schedule the water transmission line work before road work	There is practice of verbal agreement of construction works with local municipality and relevant institutions to prioritize the activities according to general municipal planning	
No	Impacts	Required Activities	<b>Corrective Actions</b>	Status
1	Poti			
	Loss of top soil; Damage to vegetation beyond clearing limits.	Top soil of about 30 sm depth shall be removed and stored separately during excavation work, and after reservoirs construction the same Topsoil shall be replaced on the top. Topsoil should be stored properly (maximum height 2 m. with 450 sloped sides); Limits of clearing will be marked with high visibility means.	Top soil slightly is mixed with the waste soil that might cause a top soil purchase need for future reinstatement activities	Partially corrected
2	Dust Generation	Cover or damp down by water spray on the excavated mounds of soil to control dust generation; Apply water prior to leveling or any other earth moving activity to keep the soil moist throughout the process; Bring the material (aggregate and sand) as and when required; Ensure speedy completion of work and proper site	At the moment no practice of truck wheels cleaning on the site is organized however it is foreseen to install sufficient equipment in the near future Tarpaulins are used to cover loose material that is transported by truck Mostly transport speed limit are	Partially corrected

		clearance after completion; Damp down	considered for minimizing of dust	
		• • • •	•	
		unsatisfied /bad condition roads to	generation	
		avoid dust generation while using for		
		transport of waste/material; Use		
		tarpaulins to cover loose material that is		
		transported to and from the site by		
		truck; Control dust generation while		
		unloading the loose material		
		(particularly aggregate and sand) at the		
		site by sprinkling water/unloading		
		inside barricaded area; Clean wheels		
		and undercarriage of haul trucks prior		
		to leaving construction site; Don't allow		
		access in the work area except workers		
		to limit soil disturbance and prevent		
		access by fencing		
3	Impacts due to	Utilize surplus/waste soil for beneficial	Surplus/waste soil is disposed next	Partially corrected
	excavation	purposes such as in construction or to	to the excavation site temporarily	
	and	raise the ground-level of low lying sites.	for the future final disposal	
		Dispose extra waste soil at Local		
	generation of	Municipal Landfill in correct manners	Surplus/waste soil final disposal	
	surplus soil	(slope should be 60º).	site will be defined by the	
			agreement with local Municipality	
	Impact on air	Ensure that all equipment & vehicles	During the construction well	Corrected
	quality due to	used for construction activity are in	operational equipment and vehicles	
		good condition and are well maintained;	are used by contractor	
	emissions from	Ensure that all equipment & vehicles		
	construction	-		

	equipment/vehi cles	confirms to emission and noise norms;		
4	Removal of vegetation/trees for construction	Avoid tree cutting by local and small change of layout plan/alignment; In unavoidable cases, plant four trees of same specie for each tree that is cut for construction; Bushes and grasses shall be cleared only in actual construction area all other preparatory works (material storage) shall be conducted on barren lands where there is no vegetation		Corrected
5	Erosion due to excavation/refill ing	No trees shall be removed on the slopes; clearing of shrub, bushes and grass shall be limited to actual construction area only; no clearance is allowed for activities such as material/waste storage, concrete mixing, etc.; Ensure proper compaction of refilled soil and there shall not be any loose soil particles on the top; the material shall be refilled in layers and compacted properly layer by layer	At the excavation site over flooding is observed that can be a risk for erosion processes	Partially corrected
6	Disturbance to business, people, activities and	about the nature and duration of any	There is practice of verbal agreement and communication with local residents before construction	Partially corrected

	socio-cultural resources due to construction work	make necessary preparations if necessary; Post the signs with hazards coming from the construction site; Limit dust by removing waste soil quickly; by covering and watering stockpiles, and covering soil with tarpaulins when carried on trucks; Provide wooden walkways/planks across trenches for	works start	
		pedestrians and metal sheets where vehicle access is required; Increasing workforce to complete the work in minimum time in the town		
	Socio-economic benefits from employing local people in construction work	To the extent possible labor force must be drawn from the local community; Contractor should at least source 50% of unskilled labor force from local communities	70-80% of the local population is employed in the works	Corrected
7	Disturbance/nui sance/noise/vib ration due to construction activity including haulage of material/waste	Plan transportation routes in consultation with Municipality and Police; Schedule transportation activities by avoiding peak traffic periods; Use tarpaulins to cover loose material that is transported to and from the site by truck; Control dust generation while unloading the loose material at the site by sprinkling water; Educate/Train drivers: speed limit	Local residents are informed verbally about constructions activities schedule Construction activities schedules are adjusted at maximum possible way to the requirements of local residents Night time construction activities	Corrected

		between 30 km/h within residences and avoid use of horn in the town; Provide prior information to local people about work; No nighttime construction activities including material/waste haulage; Earmark parking place for construction equipment and vehicles when idling; no parking shall be allowed on the roads, that may disturb the traffic movement	are not observed	
8	Impactonsurfacewaterbodiesduetoconstructionunder rain	õ	During raining time excavation works are interrupted according to relevant instructions Over flooding is observed at the site and there are no special measures undertaken to protect excavation site from entry of rain water	Partially corrected
9	Safety risk – public and worker	Follow standard and safe procedures for all activities – such as provision of shoring or slopes in deep trenches (>2	The workers are not fully equipped with PPE Within reporting period no accident	Partially corrected

		m); Exclude public from the site – enclose construction area, provide warning and sign boards, security personnel; Provide adequate lighting to avoid accidents; Ensure that all workers are provided with and use appropriate Personal Protective Equipment - helmets, hand gloves, boots, masks, safety belts (while working at heights etc); Maintain accidents records and report regularly; Instruct and train site staff in Site Safety Requirements; Designate experienced person for supervision of site safety requirements.	<ul> <li>was reported</li> <li>Storage area is located within the boundaries of construction site with the safeguard personnel</li> <li>Construction site is fenced with existing damaged fence, however it is foreseen to have new fencing in the near future</li> <li>At the entrance and within of construction site prohibition signs are established</li> </ul>	
No	Impacts	Dequired Activities		Chatria
	impacts	Required Activities	<b>Corrective Actions</b>	Status
	Anaklia	Required Activities	corrective Actions	Status

2	Dust Generation	Cover or damp down by water spray on the excavated mounds of soil to control dust generation; Apply water prior to leveling or any other earth moving activity to keep the soil moist throughout the process; Bring the material (aggregate and sand) as and when required; Ensure speedy completion of work and proper site clearance after completion; Damp down unsatisfied /bad condition roads to avoid dust generation while using for transport of waste/material; Use tarpaulins to cover loose material that is transported to and from the site by truck; Control dust generation while unloading the loose material (particularly aggregate and sand) at the site by sprinkling water/unloading inside barricaded area; Clean wheels and undercarriage of haul trucks prior to leaving construction site; Don't allow access in the work area except workers to limit soil disturbance and prevent access by fencing	Waste soil disposed at the site create risk of dust generation during windy days So far there was no practice of truck wheels cleaning at the site, however at this moment truck wheels cleaning equipment is already purchased and installed on the site Tarpaulins are used to cover loose material that is transported by truck Mostly transport speed limit are considered for minimizing of dust generation	
3	impacts due to	Utilize surplus/waste soil for beneficial purposes such as in construction or to	Surplus/waste soil is disposed at the site temporarily for the future final	Partially corrected

	excavation and generation of surplus soil	raise the ground-level of low lying sites. Dispose extra waste soil at Local Municipal Landfill in correct manners (slope should be 60 <sup>0</sup> ).	disposal Surplus/waste soil final disposal site will be defined by the agreement with local Municipality	
4	ImpactbyIncorrectwaste(haz,inert,general)andhandlingandstorage,ransport,disposal.	Avoidance of poor waste management through awareness training; Set up Temporary Storage Area on site.; Transfer waste to Central Waste Disposal Area; Personal to be responsible for hazardous waste proper segregation, collection and storage; Install compliant, roofed site washout pit and separate drainage for surface water; Dispose of washout wastes correctly after drying	Specially dedicated containers were installed for non-hazardous and hazardous waste at the sites	Corrected
5	Impact on air quality due to emissions from construction equipment/vehi cles	Ensure that all equipment & vehicles used for construction activity are in good condition and are well maintained; Ensure that all equipment & vehicles confirms to emission and noise norms	During the construction well operational equipment and vehicles are used by contractor	Corrected
6	Removal of vegetation/trees	Avoid tree cutting by local and small change of layout plan/alignment; In unavoidable cases, plant four trees of	during reporting period however	Corrected

	for construction	same specie for each tree that is cut for construction; Bushes and grasses shall be cleared only in actual construction area all other preparatory works (material storage) shall be conducted on barren lands where there is no vegetation		
7	Erosion due to excavation/refill ing	Ensure proper compaction of refilled soil and there shall not be any loose soil particles on the top; the material shall be refilled in layers and compacted properly layer by layer	At the excavation site over flooding is observed that can be a risk for erosion processes	Partially corrected
8	Disturbance/nui sance/noise due to construction activity including haulage of material/waste	Plan transportation routes in consultation with Municipality and Police; Schedule transportation activities by avoiding peak traffic periods; Use tarpaulins to cover loose material that is transported to and from the site by truck; Control dust generation while unloading the loose material at the site by sprinkling water; Educate/Train drivers: speed limit between 30 km/ph within residences and avoid use of horn in the town; Provide prior information to local people about work; No nighttime construction activities including material/waste haulage; Earmark	Local residents are informed verbally about constructions activities schedule Construction activities schedules are adjusted at maximum possible way to the requirements of local residents and institutions Night time construction activities are not observed	Corrected

9	Socio-economic benefits from employing local people in construction work	Contractor should at least source 50%	70-80% of the local population is employed in the works	Corrected
10	Safety risk – public and worker	1	The workers are not fully equipped with PPE Within reporting period no accident was reported Storage area is located within the boundaries of construction site Construction site is fenced and site permanent security is on place At the entrance and within of construction site prohibition signs are established	Partially corrected

11	Impact on	Avoid scheduling excavation work	During raining time excavation Partially corrected	
	surface water	during the rainy season; Complete pipe	works are interrupted according to	
	surface water bodies due to construction under rain	during the rainy season; Complete pipe laying work in excavated stretches and refill before monsoon; Complete the excavation and foundation during dry season; In unavoidable circumstances, protect open trenches from entry of rain water by raising earthen bunds with excavated soil; Confine construction area including the material storage (sand and aggregate) so that runoff from		
		upland areas doesn't enter the site; Ensure that drains are not blocked with excavated soil	flooding with rain water	

# ANNEX B: ENVIRONMENTAL TRAININGS

# 19 August, 2013

Training Capacity Building in Environmental Issues - Eptisa Tbilisi Office -

# Agenda

Time	Торіс	Speaker
10:30-	Opening of the training	Irakli Legashvili
10:40		Eptisa
10:40-	Environmental Management Plan (EMP)	Irakli Legashvili
11:10		Guram Tandilashvili
		Eptisa
11:10-	Q/A	Irakli Legashvili
11:30	Discussion	Eptisa
		Ketevan Chomakhidze
		UWSCG
11:30-	Site-specific environmental management	Irakli Legashvili
12:00	plan ( <b>SEMP</b> )	Guram Tandilashvili
		Eptisa
12:00-	Q/A	Irakli Legashvili
12:20	Discussion	Eptisa
		Ketevan Chomakhidze
		UWSCG
12:20-	Coffee break	
12:50		
12:50-	Environment impact and mitigation	Irakli Legashvili
13:20	measures during construction	Guram Tandilashvili
		Eptisa
13:20-	Q/A	Irakli Legashvili
13:40	Discussion	Eptisa
		Ketevan Chomakhidze
		UWSCG
13:40	Closure of the training	

# List of participants

<b>≬</b> Ω	გვარი/ სახელი	ორგანიზაცია	კონტაქტი	ხელმოწერა
1.	Sofred Barner Inchigen	11600 fuelder \$300	592 203-120	HA.
2.	ofor gagenorg	"EPTISA"	Kakoshubitidze @Xichoo.com	- Chy
3.	87 hs 2 ortonno Bonn	EpPisq	gunam. tandilashvili@gmaila	n 3. 01
4.	Irakli Legashvili	Eptisq	ilegashuli@eptisa.com	n' mal
5.	356n5 n 5/816n/	Cobra Georgia UC	Vlebanidze a grupolopra. 572 24 15 44	V. hehmy
6.	JUAN CARLOS GRANDE	COBRA GEORGIA CLC	jcgrande agropocobra. u + 34626479113	ou P
7.	signa havend	UWSGE	577 3803009	thomaking
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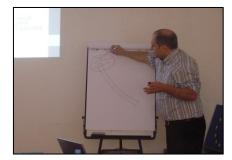


















# 1 November, 2013 Consultative Meeting in Kutaisi



04 November, 2013

Training Capacity Building in Environmental Issues (Site-specific Environmental Management Plan)

N°	გვარი/ სახელი Name	ორგანიზაცია Organization	კონტაქტი Contact	ხელმოწერა Signature
1.	pan hours	UWSCG-	577380305	Jhnary.
3.	Guga Themaladze	Cobse - Envisonmental Representative	577245241	4. Fachles
4.	Algandro Just Rodrige	Cobre.	577510033	A
5.	Vusili Lebanidze Curam Tandilashvili	Cobig Eptisa	677 241544 577 177027	V. N.J. 3. 01-07
6.	Iraklı Legashorli	Eptisa	593 200085	1.1.1.
7.				

List of Participants





Photos of training



# ANNEX C: CORRECTIVE ACTIONS INSTRUCTED BY SUPERVISION CONSULTANT AND UWSCG

# **MESTIA Water Supply Headworks (Contract MES-01):**

Date	Reference of Inspection Note
08.08.2013	Environmental, Health & Safety Note
09.10.2013	Environment, Health & Safety Plan Monitoring 018
13.10.2013	Environment, Health & Safety Plan Monitoring 020
11.11.2013	Environment, Health & Safety Plan Monitoring 025
25.11.2013	Environment, Health & Safety Plan Monitoring 027

# KUTAISI, POTI & ANAKLIA Water Supply Infrastructurs (Contract REG-01).

Date	Reference of Inspection Note
19.11.2013	Non-conformity report – Kutaisi networks
13.12.2013	Non-conformity report – Vajha Psavela reservoir site