

Environmental Monitoring Report

Semestral Report
April 2013

GEO: Urban Services Improvement Investment Program – Project 1

Prepared by United Water Supply Company of Georgia, LLC, Government of Georgia for the Asian Development Bank.

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Bi Annual Environmental Monitoring Report

Period: July 1st - December 31th 2012

Project Number: 43405
November 2010

Multitranche Financing Facility

Georgia: Urban Services Improvement

Investment Program – Construction of Mestia

Headworks (Tranche 1)

Prepared by “United Water Supply Company of Georgia, LLC”, Government of Georgia for the Asian Development Bank.

*Tbilisi, Georgia
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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
MoEPNR	Ministry of Environmental Protection and Natural Resources
MoRDI	Ministry of Regional Development & Infrastructure
UWSCG	United Water Supply Company of Georgia

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I. INTRODUCTION

1. 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 will be financed by the ADB through its Multi-tranche Financing Facility. Ministry of Regional Development and Infrastructure is the Executing Agency and United Water Supply Company of Georgia, LLC is the Implementing Agency of the Investment Program. UWSCG is a 100% state-owned company.

2. 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.

3. The Tranche 1 of the Investment Program includes: Construction of Mestia Headworks; Construction of Mestia Water Treatment Plant and Reservoirs and Improvement of Water Supply Infrastructure in Anaklia, Kutaisi and Poti.

4. The following projects are financed under Tranche I:

Contract-1: Construction of Mestia Headworks; 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 with gravity. Apart from the intake, the scope of work comprises 10 km transmission lines to the site of Water Treatment Plant and a reservoir and the connection of this location to the distribution network.

Contract-2: Construction of Mestia Water Treatment Plant and Reservoirs. The scope of works includes a new 2,000 m³ reservoir for the supply of new tourist zone the extension of existing reservoir by 1,000 m³ and construction of new water treatment plant with the capacity of around 80 liters/second. The civil works also include the transmission main from the reservoir at water treatment plant to the new high level reservoir.

Contract-REG-01: Improvement of Water Supply Infrastructure. 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 main works will comprise the laying of app. 96 km water supply pipelines, the construction of concrete water reservoirs at 5 locations with a total storage volume of 36,000 m³, the construction of a 20.75 MLD water treatment plant and the construction of 4 pumping stations with a total capacity of 4,516 m³/h. Particular details of works are following:

Anaklia: Construction of approximately 6,000 m³ capacity reservoir (two circular shape reservoirs of 3,000 m³ each) at Darcheli; Construction of new pumping station with total capacity of 348 m³/h; Construction of a transmission main from two well fields at Kakhati and

Inghiri (south of Zugdidi) to the new reservoir at Darcheli for approximately 14 km, and from the reservoir at Darcheli to the networks of Ganmukhuri and Anaklia for approximately 8 km

Kutaisi: Rehabilitation of two pumping station for approximately 465 m³/h at Vazha Pshavela (approximately 348 m³/h) and at Kldiashvili (approximately 117 m³/h); Construction of 4 new reservoirs for approximately 15,000 m³ capacity at Vazha Pshavela (2 x 3,500 m³) and 1*3000, Tetramitsa (2 x 2,000 m³), and TV Tower (1 x 1,000 m³); Construction of transmission main and distribution lines of a total of 52 km; Installation of approximately 40,000 nos of water meters, pipes, fittings, etc. for the metering of households in apartment blocks.

Poti: Construction of new pumping station with 14 pumps of approximately 3,703 m³/h capacity in Nabada; Construction of 5 x 3,000 m³ rectangular shape new reservoirs at the eastern side of the Nabada territory; Supply and installation of new pumps of approximately 3,380 m³/h capacity and mains of 22 km for 29 wells; Power supply, control cables and switchboards for 29 wells; Design, construction and commissioning of a new water treatment plant of 20.75 MLD capacity, as well as training of the operator's staff. The estimated construction period for whole of the works is 913 days.

Contract-1: Civil Works Contract was signed with Joint Venture of Dagi LTD – Georgia and Enguri 2006 LTD - Georgia on 10 October 2011 and will be completed on April, 2013. The proposed Bi-Annual Environmental report is prepared considering the time period from 01July to December 31.

Contract-2: Draft bidding documents submitted to ADB.

Contract-REG-01: Bid Evaluation Report submitted to ADB.

5. The Project's Environmental Impact Monitoring and Mitigation is carried out in accordance with the Environmental Management Plans prepared by the UWSCG / Consultant. The construction activities affecting the environment are as follows:

1. Contractor's mobilization and site installation
2. Excavation works
3. Removal of soil
4. Surface water drainage during rains

6. The following items are monitored during the implementation of the project:

1. Air Quality
2. Noise
3. Removal of vegetation/trees for construction

7. The only parameters monitored during the construction period were dust control to keep air quality at acceptable level, noise and removal of vegetation/trees for construction. Dust control issue is working positively to avoid complains from local residents.

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) were prepared by the United Water Supply Company of Georgia within the Contract 1. It was based on detailed design and the requirements of the ADB Safeguards Policies Statement (2009). The Land acquisition and resettlement issues are provided below.

A. Land Acquisition

10. The objective of LARP were to plan and implement land acquisition and resettlement in Mestia considering general principles that Affected Persons' livelihood should be better or at least remain at the present level after completion of the Project.

The main impact covers 24 land parcels spread over two territories of the sections:

- a. **The first section (Section 1)** located in Zargashi impacts 15 land plots;
- b. **The second section (Section 2)** located in area called Lebeliani impacts 9 land plots.

11. In Section 1, the construction of a new water treatment plant requires 34,828 square meters of land that will impact on 11 land parcels. The new section of the 201 meters 2 long pipeline will extend over 2,096 square meters of hay fields and temporarily disturb 2 land parcels.

12. In Section 2, the new reservoir will permanently occupy a total of 7,407 square meters and impact only 2 private land parcels. From the water reservoir a new pipeline of 500 meters long traversing 7 land parcels will cause temporary disturbance of 4,640 square meters of land.

13. The following impacts were imposed on these land parcels: **permanent land impact** – permanent loss of land and **temporary land disturbance** retaining further **limitation on land use** (servitude agreements).

14. The total size of sub-project impact land on both sections is 48,971 (24 land parcels). Among them 13 land parcels with total area 42,235 sq.m were purchased. The area of 6,736 square meters (11 land parcels) will experience temporary disturbance (the servitude agreements were signed with all land owners) due to pipeline construction activities and future limitations on land use regulated under servitude agreements.

15. To conduct monitoring and evaluation of the land acquisition and resettlement plan and to evaluate results and impacts of the resettlement implementation the United Water Supply Company of Georgia hired Ms. Sophie Berishvili, individual expert as the External Monitoring Consultant (EMC). The EMS has prepared Final Compliance Report (FCR) that was approved by the Asian Development Bank..

16. Approved LARP was implemented with full compliance of ADB and Georgian Government's requirements. All compensations were paid in accordance of the Evaluation report considering market value of the impacts. The total cash compensation for land, assets and income loss and additional rehabilitation measures stipulated under the LARP was 214,145 GEL.

17. Compensation payments to all 22 land owners were made on August 2 and 3, 2011.

B. Construction activities and Project Progress during previous 6 months

18. The activities which were carried out by the Contractors in the past 6 months (July 01 to December 31, 2012) are as follows:

1. 50% of excavation works of the Headworks;
2. Construction of 2000m³ reservoir;
3. 50% of excavation works of the transmission line;
4. Installation of transmission line DN300 – 4700m

C. Environmental Management Team

19. In compliance with the reorganization which took place in UWSCG the Department of Quality Management, Resettlement and Environment Protection was abolished. Ms. Tinatin Zhizhiashvili, former head of department left job for a new company. Ms. Ketevan Chomakhidze is the only representative of environmental team employed by UWSCG and hired per requirements of ADB / EARF. She is responsible for the environmental and safety management of ADB financed projects.

20. The Contractor, under Contract 1 employs an environmental specialist Mr. Irakli Tsurtsunia, to help UWSCG on supervision and monitoring of the Environmental Management Plan.

21. The following works were performed by the environmental management team:

- Explaining the Environmental Management Plan (EMP) to the Contractor, the site staff, the supervisors and other relevant personnel;
- On-site supervision of construction activities;
- Monitoring and implementation of the EMP;
- Ensuring that the contractor understands what is to be done to rectify and address any issues identified through monitoring.

D. Project Organization

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

Contract #	Employer	Contractor
Contract-1 UWSCG/ICB/CW/2011-MES-01	UWSCG	Joint Venture of Dagi LTD – Georgia and Enguri 2006 LTD - Georgia

II. ENVIRONMENTAL MONITORING

23. During the July-December period, no environmental issues were flagged and no complaints received from the local residents.

24. The Contractor kept records of industrial safety; environmental considerations of the construction sites; air quality and noise; within the reporting period, no adverse environmental impacts related to the works have been noted or observed.

25. Within the reporting period Joint Venture of Dagi LTD – Georgia and Enguri 2006 LTD - Georgia monitored and addressed the issue of air quality, industrial waste disposal and noise.

A. Air quality

26. Material (aggregate and sand) is brought to the site when required. Speedy completion of work and proper site clearance after completion are ensured. Wheels and undercarriage of haul trucks are washed prior to leaving construction site.

27. In order to limit soil disturbance, the access to the site is limited to construction workers and the site is fenced.

28. Dust is controlled through watering the roads where driving can easily generate dust. Excavated mounds of soil are damped down by water spray. Tarpaulins are used to cover loose materials that are transported to and from the site by track.

29. Dust generation is controlled while unloading the loose material at the site by sprinkling water inside barricaded area.

B. Noise

31. The Contractor has employed practical means to minimize noise resulting from construction work. The plan of transportation routes are agreed with Municipality and Police. Wheels and undercarriage of haul trucks were cleaned.

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

C. Removal of vegetation/trees for construction

33. Tree cutting has been avoided by small change of layout plan/alignment; No tree, bush or vegetation cover was removed in the reporting period.

34. Bushes and grasses should have been cleared only in actual construction area all other preparatory works (material storage) should be conducted on barren lands where there was no vegetation.

III. ENVIRONMENTAL MANAGEMENT

A. Site Inspections

35. The Contractor's field inspectors performed daily site visits to the project sites. UWSCG Environmental team visited on project sites minimum once a month. Joint Venture of Dagi LTD – Georgia and Enguri 2006 LTD – Georgia's Environmental Consultant performed weekly site inspections.

B. Reporting

36. The Contractor submitted quarterly statements to the UWSCG/environmental management team describing their environmental monitoring activities.

C.

D. Corrective Action Plans

37. No corrective actions were recommended during the reporting period of July 2012 – December 2012.

E. Consultation and Complaints

38. No complaints were received during the reporting period.

IV. ANNEX A: MONITORING DATA

No	Issue	Location	Recommended Measures	Implementation/Compliances	Comments
	Construction				
	Loss of top soil		<ul style="list-style-type: none"> • Top soil of about 1 ft depth (0.3 m) shall be removed and stored separately during excavation work, and after pipeline construction the same soil shall be replaced on the top 	During the construction of reservoir the top soil was removed and stored separately.	Satisfactory
	Erosion due to excavation/refilling		<ul style="list-style-type: none"> • 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.; 	No trees have been removed during the reporting period on the slopes.	Satisfactory
	Impacts due to construction in the river		<ul style="list-style-type: none"> • Water flow shall not be interrupted completely/diverted; work shall be conducted on the one-side of the stream, that water to flows on the other side; • Enclose the construction area (e.s with sand bags) so that water do not enter into construction site 	If any potential risks identified all mitigation measures will be considered.	Satisfactory
	Impact on air quality due to dust generation		<ul style="list-style-type: none"> • Cover or damp down by water spray excavated mounds of soil to control dust generation; • Apply water prior to leveling or performing 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; 	Dust is controlled through watering the roads in July, August and September, during the raining period through the populated area where driving can easily generate dust. Access to site is restricted.	Satisfactory

No	Issue	Location	Recommended Measures	Implementation/ Compliances	Comments
			<ul style="list-style-type: none"> • 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; • Restricted access to the work area except workers to limit soil disturbance and prevent access by fencing the site 		
	Removal of vegetation/trees for construction		<ul style="list-style-type: none"> • 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; • 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; • Trench construction shall be taken up in small segments, so that work (excavation, pipe laying and refilling) in each segment is completed in a day. No trenches shall be kept open in the night/after work hours. This will prevent any safety risk to wild animals 	No tree, bush or vegetation cover was removed in the reporting period.	Satisfactory
	Disturbance to business, people, activities and socio-cultural resources		<ul style="list-style-type: none"> • Inform all residents and businesses about the nature and duration of any work well in advance so that they make 	All residents were informed about the nature and duration of any work well in	Satisfactory

No	Issue	Location	Recommended Measures	Implementation/Compliances	Comments
	due to construction work		necessary preparations; <ul style="list-style-type: none"> • Limit dust by removing waste soil quickly; by covering and watering stockpiles, and covering soil with tarpaulins when carried on trucks; • Increasing workforce to complete the work in minimum time in the town 	advance so that they make necessary preparations; Dust is limited by removing waste soil quickly and covering soil with tarpaulins when carried on trucks.	
	Disturbance/nuisance/noise due to construction activity including haulage of material/waste		<ul style="list-style-type: none"> • Plan transportation routes in consultation with Municipality and Police; • Schedule transportation activities in a way to avoid 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; • Clean wheels and undercarriage of haul trucks prior to leaving construction site; • Educate drivers: limit speed between 20-25 KMPH and avoid use of horn in the town; • Earmark parking place for construction equipment and vehicles when idling; no parking shall be allowed on the roads, that may disturb the traffic movement; • Provide prior information on works to local people about work to local residents; • No nighttime construction activities 	Transportation routes were planned in consultation with Municipality and Police. Tarpaulins were used to cover loose material that is transported to and from the site by truck. Wheels and undercarriage of haul trucks were washed prior to leaving construction site. No parking is allowed on the roads, to avoid disturbing traffic movement. Information on works was provided to local	Satisfactory

No	Issue	Location	Recommended Measures	Implementation/ Compliances	Comments
			including material/waste haulage	residents prior to start of works. No nighttime construction activities were carried out.	
	Socio-economic benefits from employing local people in construction work		<ul style="list-style-type: none"> • 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 	<p>The Contractor took best efforts to meet the requirements.</p> <p>90% of unskilled labor force are representatives of local communities.</p>	Satisfactory
			<ul style="list-style-type: none"> • In unavoidable case of sourcing labor from other areas, provide adequate housing facilities so that there are no impacts and conflict with the local people; • Establish temporary labor camps in consultation with the local authority; • labor camps to be located away from water bodies; • No clearance of trees vegetation shall be allowed for establishment of camps; • Provide all basic amenities (water supply and sanitation, waste collection & disposal, first aid facilities, etc); • Contractor shall provide fire wood and no worker shall be allowed to cut any tree; • Ensure regular and clean maintenance of the camp; 	<p>Contractor provided workers with required accommodation and in some cases took additional expenses.</p> <p>No new camps / accommodation were built to avoid impact on environment.</p>	Satisfactory

No	Issue	Location	Recommended Measures	Implementation/ Compliances	Comments
	Safety risk for local residents and workers		<ul style="list-style-type: none"> • Follow standard and safe procedures for all activities – such as provision of shoring in deep trenches (>2 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 safety - helmets, hand gloves, boots, masks, safety belts (while working at heights etc); • Maintain accidents records and report regularly 	Contractor's safety advisor is controlling sites. All workers are equipped with relevant PPE. No accidents were reported.	Satisfactory
	Historical, archeological chance finds during excavation		<ul style="list-style-type: none"> • Contractor shall put in place a protocol for conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved. This should involve: <ul style="list-style-type: none"> ○ Excavation observed by a specialist with archaeological field training; ○ Stopping work immediately to allow further investigation if any finds are suspected; ○ In case of suspected archeological find contact archeological authority and take any action they require to ensure its removal or protection. 	During these six months no finding was discovered. In case any finding all mitigation measures will be closely followed.	Satisfactory
	Cumulative impacts repeated disturbance to roads and people		<ul style="list-style-type: none"> • Harmonize the schedule of construction works in harmony with other ongoing works; • Schedule the water transmission line work before road work 	During last six months no complaints were received.	Satisfactory

V. NNEX B: PICTURES

Photograph No. 1



Yard for construction materials

Construction of Mestia Headworks – Project Area

Photograph No. 2



Fueling of Excavator

Construction of Mestia Headworks – Project Area

Photograph No. 3



Controlling the dust through watering the roads

Construction of Mestia Headworks – Project Area

Photograph No. 4



A view of material stocking area.

Construction of Mestia Headworks – Project Area

Photograph No. 5



Trucks with construction material covered with tarpaulin.

Construction of Mestia Headworks – Project Area

Photograph No. 6



A view of material stocking area.

Construction of Mestia Headworks – Project Area

Photograph No. 7



Construction Works in Mestia, Site during reinstatement.

Construction of Mestia Headworks – Project Area

Photograph No.8



Site after reinstatement. On completed locations footprints of the project can be hardly identified.

Construction of Mestia Headworks – Project Area