



Upgrade and Rehabilitation of Water Supply System serving Gardabani villages Sub-Project (Phase 2)

Environmental and Social Screening and Environmental Management Plan

WORLD BANK FINANCED

SECOND REGIONAL AND MUNICIPAL INFRASTRUCTURE DEVELOPMENT PROJECT

Tbilisi, Georgia

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Environmental Screening

The present Sub-project (SP) envisages upgrading and rehabilitating of water supply system serving the following villages of Gardabani Municipality: Martkopi, Norio, Akhalsopeli, Vaziani, Akhali Samgori (phase 2) with the total population of 25,364 people. The SP area is located in eastern Georgia, 50-120 km away from Tbilisi. All villages are mountainous and are located in the region where underground and surface water resources are small, summer is hot and water demand is high. Although every village has its own source of water supply, it does not meet the demands of even a quarter of the population. The population is supplied with water from a dilapidated reservoir. Transmission network is mostly made of steel, and due to their corrosion damage, emergency interruption of supply is frequent. Metering is not in villages, causing unnecessary consumption of water and acute shortage. The problem-solving of water supply of these villages (external Kakheti) has been started in the 80-ies of the past century, but due to the financial and source-related difficulties it is not yet finalized.

This SP is the second phase of the Gardabani Water Supply Project. The first phase is being implemented by the United Water Supply Company of Georgia Ltd (UWSCG) and includes partial arrangement of a headwork building and a main pipeline, particularly:

- 15 units of wells for the headwork (from the total 23);
- Collecting pipeline;
- Water collector reservoir;
- Pumping station;
- Chlorination building;
- watchman's cabin;
- Transformers;
- A main pipeline from the headwork towards Akhalsopeli village turn along Gombori highway.

Considering abovementioned, the second phase-SP includes the following activities:

- Arranging the remaining infrastructure of the headwork – 8 wells and collecting pipelines;
- Installing underground horizontal drainages and collecting pipelines;
- Constructing of collecting reservoirs;
- Arranging technological devices in the chlorination building;
- Arranging pipelines towards villages;
- Arranging distribution reservoirs.

Reservoirs of potable water will be filled with water extracted from the bore well (for which the remaining infrastructure is to be arranged) as well as from underground horizontal drainages through collecting pipes. During spring and autumn seasons (when there is plenty of water) only horizontal drainages and collecting pipes will be used and electricity consumption will be saved. In summer, a bore well will also be used for filling reservoirs.

Population will be supplied with drinking water through the existing water supply network which is in a poor condition. Rehabilitation of the network is not included in the SP as the municipality takes responsibility to arrange rehabilitation works. Moreover, the local municipality will ensure obtaining agreements with operators of linear infrastructure located in the vicinity of water supply system supported by this SP. Around 1,5 km of the pipeline will cross the State Forest Fund, for which special usage permit is required. According to Gardabani municipality letter N04/4378 of 10.05.2018, which is attached to this EMP, the municipality has started the procedure for gaining special use permit from the State Forest Fund.

Constructing of the new water intake with the capacity of 370 m³/h will allow 24-hour supply of potable water to local population. Existing water supply covers only 10-25% of the needs of the local population as the water is supplied through several small springs. Currently, there is no sewage infrastructure in place. Sewage water is discharged in toilet pits arranged mainly in yards, household water is also discharged into the ground soil. Municipality is negotiating arrangement/construction of sewage system with the UWSCG, though the specific timeline of the provision of this infrastructure is not known.

(A) IMPACT IDENTIFICATION

<p>Has sub-project a tangible impact on the environment?</p>	<p>The SP will not have significant or irreversible negative impacts on the environment. No sensitive environmental receptors will be affected.</p>
<p>What are the significant beneficial and adverse environmental effects of sub-project?</p>	<p>The SP is expected to have positive long term social impact through improvement of the water supply system in five villages of Gardabani Municipality.</p> <p>By presented SP, the water usage will be optimized. The SP envisages rehabilitation of the existing water supply system/facilities which is very old with significant leakages, causing lower network pressure and decreased delivery efficiency. Improvement of water system, especially elimination of leakages will conserve entire water resources in the region and this will be counted as a benefit for the environment.</p> <p>SP design materials include hydrological and geological study, according to which water extraction from underground aquifer at the rate of 8,813 m³/d will not cause adverse environmental impacts.</p>

	<p>Expected negative environmental and social impacts are likely to be short term and typical for small to medium scale rehabilitation works in urban landscape: noise, dust, vibration, and emissions from the operation of construction machinery; generation of construction waste; disruption of traffic and pedestrian access. All the mentioned impacts are expected to be temporary and insignificant.</p> <p>The part of the pipelines will cross the State Forest Fund and the local Self Government (LSG) has started the procedure of obtaining special use permit.</p>
<p>May the sub-project have any significant impact on the local communities and other affected people?</p>	<p>No new land take and resettlement are expected during the SP implementation.</p> <p>The SP is supposed to have positive long term social impact through the improvement of water supply system in five villages.</p> <p>The improved water system eliminates the risk of the cross-contamination of the drinking water. Among the socio-economic benefits should be noted: diminution of private health and public health expenditures.</p> <p>Consequently, negative impacts for local communities are short term and limited to the construction site. They are related to the possible disturbance described above.</p>

(B) MITIGATION MEASURES

<p>Were there any alternatives to the sub-project design considered?</p>	<p>Alternative location of the headwork has been discussed. But the location was further and required tree-cutting from the forest fund. That's why it was rejected by the UWSCG and LSG.</p>
<p>What types of mitigation measures are proposed?</p>	<p>The expected negative impacts of the construction phase can be easily mitigated by demarcation of the construction site, traffic management, good maintenance of the construction machinery, observance of the established working hours, and organized disposal of waste to the formally agreed sites.</p>

	<p>The contractor will be responsible for the waste disposal at the permitted location, use the quarry materials from the licensed quarries only, prevent water and soil from pollution (fuel spills due to equipment failure, row asphalt / concrete spills etc.), avoid disturbance of population (noise, dust, emissions) through proper work / supplies scheduling, traffic management, good maintenance of the construction machinery, etc. Newly constructed reservoir and laid pipes will be disinfected and direct release of disinfectant into natural environment will have negative environmental impacts. Therefore, deactivation of disinfectant will be required to avoid environmental damage.</p>
<p>What lessons from the previous similar projects have been incorporated into the sub-project design?</p>	<p>MDF have a wide experience in implementation of medium and large-scale water system rehabilitation projects financed by various donor organizations.</p>
<p>Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in sub-project preparation?</p>	<p>The SP has been developed by the MDF taking into consideration current needs and priorities of local population with consultation and collaboration of Municipality and Self-governing entities (Sakrebulo).</p> <p>Draft EMP together with contact information of the contact persons will be disclosed on the website of MDF. Hard copies of the document will be made available at the MDF and Gardabani municipality. Announcement on the public consultation meeting will be placed on public information board in the administration building of Gardabani municipality Governance.</p> <p>MDF and local municipality will organize a public consultation meeting with local population prior to tendering procedures. Documents on public consultations will be attached.</p>

(C) RANKING

The project has been classified as environmental Category B according to the World Bank safeguards (OP 4.01) and requires Completion of the Environmental Management Checklist for Small Construction and Rehabilitation Activities.

Social Screening

Social safeguards screening information		Yes	No
1 ¹	Is the information related to the affiliation, ownership and land use status of the sub-project site available and verifiable? (The screening cannot be completed until this is available)	✓	
2	Will the sub-project reduce people's access to their economic resources, such as land, pasture, water, public services, sites of common public use or other resources that they depend on?		✓
3	Will the sub-project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?		✓
4	Will the sub-project result in the temporary or permanent loss of crops, fruit trees and household infra-structure (such as ancillary facilities, fence, canal, granaries, outside toilets and kitchens, etc.)?		✓
If answer to any above question (except question 1) is "Yes", then OP/BP 4.12 Involuntary Resettlement is applicable and mitigation measures should follow this OP/BP 4.12 and the Resettlement Policy Framework			

¹ Around 1.5 km of the pipeline will cross the State Forest Fund, for which special usage permit is required. According to Gardabani municipality letter N04/4378 of 10.05.2018, which is attached to this EMP, the municipality has started the procedure for gaining special use permit from the State Forest Fund.

Environmental Management Plan

PART A: GENERAL PROJECT AND SITE INFORMATION

INSTITUTIONAL & ADMINISTRATIVE			
Country	Georgia		
Project title	Second Regional and Municipal Infrastructure Development Project		
Sub Project title	Water Supply of Five Villages in Gardabani Municipality – Martkopi, Norio, Akhalsopeli, Vaziani, Akhali Martkopi		
Scope of site-specific activity	<p>Population will be supplied with drinking water through the existing water supply network which is in a poor condition. Rehabilitation of the network is not included in the SP as the municipality takes responsibility to arrange rehabilitation works. Moreover, the local municipality will ensure obtaining agreements with operators of linear infrastructure located in the vicinity of water supply system supported by this SP. Around 1,5 km of the pipeline will cross the State Forest Fund, for which special usage permit is required. According to Gardabani municipality letter N04/4378 of 10.05.2018, which is attached to this EMP, the municipality has started the procedure for gaining special use permit from the State Forest Fund.</p> <p>Constructing of the new water intake with the capacity of 370 m³/h will allow 24-hour supply of potable water to local population. Existing water supply covers only 10-25% of the needs of the local population as the water is supplied through several small springs. Currently, there is no sewage infrastructure in place. Sewage water is discharged in toilet pits arranged mainly in yards, household water is also discharged into the ground soil. Municipality is negotiating arrangement/construction of sewage system with the UWSCG, though the specific timeline of the provision of this infrastructure is not known.</p>		
Institutional arrangements (WB)	Task Team Leader: Joana Mclean Masic	Safeguards Specialists: Darejan Kapanadze – Environment; Sofia Georgieva – Social.	
Implementation arrangements (Borrower)	Implementing entity: Municipal Development Fund of Georgia	Works supervisor: Consulting company Eptisa Servicios de Ingenieria S.L. Spain	Works contractor: (tbd)
SITE DESCRIPTION			

Name of institution whose premises are to be rehabilitated	Gardabani Municipality, UWSC
Address and site location of institution whose premises are to be rehabilitated	73 Davit Aghmashenebeli str., Gardabani Municipality Tel: (+995) 595 24 23 63 E-mail: Gardabani.mun@gmail.com
Who owns the land? Who uses the land (formal/informal)?	Land plots on which reservoir, pump station, chlorination building and well will be arranged are registered as property of UWSC. Usage of land portions in private ownership during project implementation (construction of water pipe networks) is not planned. Local municipality has taken responsibility to obtain all the required permits and agreements including special permit of the state forest fund.
Description of physical and natural environment around the site	5 villages of Gardabani municipality are located in eastern Georgia, 50-120 km from Tbilisi. Villages are assigned to the following number: 1) Martkopi - 10000 inhabitants, 2500 households. 2) Norio - 5504 inhabitants, 1376 households. 3) Akhalsopeli - 2400 inhabitants, 600 households. 4) Vaziani - 4400 inhabitants, 1100 households, comprising five settlements: A) Saakadze - 400 inhabitants, 100 households; B) Vaziani - 560 inhabitants, 140 households; C) Adjara settlement - 560 inhabitants, 140 households; D) the upper military settlement - 2480 inhabitants, 620 households; E) Lower military settlement (airport) - 400 inhabitants, 100 households; 5) New Samgori - 3672 inhabitants, 765 households. All five villages are located in a region where underground and surface water resources are small, summer is hot and water demand is high. The average temperature for January is from 0 to +2 degrees, from July 25 to +28 degrees. Average annual precipitation is 761 mm, a maximum of 102 mm.
Locations and distance for material sourcing, especially aggregates, water, stones?	Distance to the nearest licensed borrow pit is approximately 10 km.
LEGISLATION	

<p>National & local legislation & permits that apply to project activity</p>	<p>The SP has been classified as low risk Category B according to the WB policies and the ESMF.</p> <p>The SP proposal has been officially presented to the MDF by local municipality for financing and represents the need and priority of the Municipal Government according to common demands.</p> <p>Georgian legislation does not require any type of environmental review, approval, or permitting for the SP. Though according to the national regulatory system:</p> <ul style="list-style-type: none"> (i) construction materials must be obtained from licensed providers, (ii) if contractor wishes to open quarries or extract material from river bed (rather than purchasing these materials from other providers), then the contractor must obtain licenses for extraction, (iii) if contractor wishes to operate own asphalt or concrete plant (rather than purchasing these materials from other providers), then the contractor must obtain an environmental permit with an established ceiling of pollutant concentrations in emissions and technical report on inventory of atmospheric air pollution stationary source agreed with Ministry of Environment Protection and Agriculture; (iv) Permanent placement of the cut ground generated in the course of earth works in a selected location must be approved by local (municipal) governing bodies in written; (v) Construction waste must be disposed on the nearest municipal landfill in accordance with written agreement with the Solid Waste Management Company of Georgia Ltd. <p>Local municipality takes responsibility to arrange obtaining all the necessary permits, agreements and other required documentation for rehabilitation works and proper operation of the system including special permit of the state forest fund.</p> <p>GOST and SNIP norms must be adhered. Cleansing of newly laid pipes with a disinfection solution, typically chlorination will be undertaken in accordance with SNIP requirements.</p>
PUBLIC CONSULTATION	
<p>When / where the public consultation process will take /took place</p>	<p>Draft EMP will be disclosed on the web-site of MDF. Hard copies of the document will be made available at the MDF and Gardabani municipality. Announcement on the public consultation meeting will be placed on public information board in the administration building of Gardabani municipality Governance.</p>

	MDF and local municipality will organize a public consultation meeting with local population prior to tendering procedures.
GRIEVANCE REDRESS MECHANISM	
<p>Appropriate grievance redress mechanism was established to solve grievances of Project-Affected People, as required. Gardabani Municipality has assigned a responsible person – Beka Oniani, from technical unit of Gardabani municipality to receive, review and react to the APs grievances (Tel: 551801765 email: gardabani.infrastruqtura@gmail.com, (73 Davit Aghmashenebeli str, Gardabani Municipality). A contact person from the MDF is Nutsa Gumberidze (Tel: +995 598 88 20 19, feedback@mdf.org.ge, 150 Davit Aghmashenebeli ave., 3rd floor, 0112 Tbilisi, Georgia.)</p> <p>If the grievance will not be unsolved at the local level, it will be lodged to the MDF. As for grievance monitoring MDF registers all received compliances, comments and how the compliance was addressed. During public consultations, the local population will be informed about the grievance redress process and receive information about contact persons.</p>	
ATTACHMENTS	
<p>Attachment 1: Situation plan, photos and ortho-photo; Attachment 2: Documents on the public consultation (to be provided); Attachment 3: Agreements, permits, license (to be provided).</p>	

PART B: SAFEGUARDS INFORMATION

ENVIRONMENTAL /SOCIAL SCREENING			
	Activity/Issue	Status	Triggered Actions
Will the site activity include/involve any of the following?	1. Building rehabilitation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section A below
	2. New construction	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section A below
	3. Individual wastewater treatment system	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section B below
	4. Historic building(s) and districts	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section C below
	5. Acquisition of land ²	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section D below
	6. Hazardous or toxic materials ³	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section E below
	7. Impacts on forests and/or protected areas	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section F below
	8. Handling / management of medical waste	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	See Section G below
	9. Traffic and Pedestrian Safety	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See Section H below

² Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

³ Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

PART C: MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
<p>0. General Conditions</p>	<p>Notification and Worker Safety</p>	<ul style="list-style-type: none"> (a) The local construction and environment inspectorates and communities have been notified of upcoming activities (b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) (c) All legally required permits have been acquired for construction and/or rehabilitation (d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. (e) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) (f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.
<p>A. General Rehabilitation and /or Construction Activities</p>	<p>Air Quality</p>	<ul style="list-style-type: none"> (a) During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site (b) The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust (c) There will be no open burning of construction / waste material at the site (d) There will be no excessive idling of construction vehicles at sites (e) Truck loads should be confinement and protected with lining (f) Vehicles/equipment discharging black smoke must be scheduled for maintenance immediately (g) Limit vehicles speeds to 35-40 km on unpaved surfaces (h) Watering of unpaved surfaces and roads
	<p>Noise</p>	<ul style="list-style-type: none"> (a) Limit activities to daylight working hours; (b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible (c) Maintaining equipment in a good working order so that extraneous noises from mechanical vibration creaking and squeaking are reduced to a minimum (d) Shutting down equipment when it is not directly in use, except where the equipment is required to run continuously.
	<p>Water Quality</p>	<ul style="list-style-type: none"> (a) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers (b) Septic effluent will be removed/transported by special equipment and discharged in municipal sewage system

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
	Waste management	<ul style="list-style-type: none"> (a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities (b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers (c) Construction waste will be collected and disposed properly on the agreed location (d) The records of waste disposal will be maintained as proof for proper management as designed (e) Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)
	Material supply	<ul style="list-style-type: none"> a) Use existing plants, quarries or borrow pits that have appropriate official approval or valid operating license b) Obtain licenses for any new quarries and/or borrowing areas if their operation is required c) Reinstate used sections of quarries and/or borrowing areas as extraction proceeds on or properly close quarries if extraction completed and license expired d) Haul materials in of peak traffic hours e) Place speed regulating, diverting, and warning signs for traffic as appropriate
	Soil contamination	<ul style="list-style-type: none"> a) Construction Company should organize and cover material storage areas. Lubricants, fuel and solvents should be stored and used for servicing machinery exclusively in the designated sites with adequate lining of the ground and confinement of possible operation and emergency spills b) Spill containment materials (sorbents, sand, sawing, chips etc.) should be available on construction sites. c) Mobile drip tray and Spill kits will be provided during refueling process d) The material storage sites and embankments should be protected from washing out during heavy rainfalls and flooding through covering by impermeable materials
	Safe functioning of the water supply disinfection system via chlorination	<ul style="list-style-type: none"> a) Upon completion of washing and disinfection of pipes and reservoirs the disinfection solution will be neutralized by the contractor prior to release to the environment – to avoid damage to terrestrial or aquatic organisms. This is achieved by application of a reducing agent - sodium bisulfate. The reducing agent, in turn, must be applied by the contractor at the precise dosage to neutralize the disinfectant – but no more, since reducing agent residuals are also detrimental to aquatic ecosystems. Releasing of neutralized water to the environment by the contractor will be agreed with the local municipality. b) Operations & Maintenance Training (upon facility start-up) will be executed by works contractor, including supply of Operation Manual in Georgian Language.
H Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by	<ul style="list-style-type: none"> (a) In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
	construction activities	<ul style="list-style-type: none"> ▪ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards ▪ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. ▪ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement ▪ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. ▪ Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.

PART D: MONITORING PLAN

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
CONSTRUCTION PHASE						
Supply with construction materials	Purchase of construction materials from the officially registered suppliers	In the supplier's office or warehouse	Verification of documents	During conclusion of the supply contracts	To ensure technical reliability and safety of infrastructure	MDF, Construction supervisor
Transportation of construction materials and waste; Movement of construction machinery	Technical condition of vehicles and machinery; Confinement and protection of truck loads with lining; Respect of the established hours and routes of transportation	Construction site	Inspection	Unannounced inspections during work hours and beyond	To limit pollution of soil and air from emissions; Limit nuisance to local communities from noise and vibration; Minimize traffic disruption.	MDF, Construction supervisor, Traffic Police
Earth Works	Temporary storage of excavated material in the pre-defined and agreed upon locations; Backfilling of the excavated material and/or its disposal to the formally designated locations; In case of chance finds immediate suspension of works, notification of the	Construction site	Inspection	In the course of earth works	Prevent pollution of the construction site and its surroundings with construction waste; Prevent damage and loss of physical cultural resources	MDF, Construction supervisor

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	Ministry of Culture and Monument Protection, and resumption of works exclusively upon formal consent of the Ministry.					
Sourcing of inert material	<p>Purchase of material from the existing suppliers if feasible;</p> <p>Obtaining of extraction license by the works contract and strict compliance with the license conditions;</p> <p>Terracing of the borrow area, backfilling to the exploited areas of the borrow site, and landscape harmonization;</p> <p>Excavation of river gravel and sand from outside of the water stream, arrangement of protective barriers of gravel between excavation area and the water stream, and no entry of machinery into the water stream.</p>	Borrowing areas	<p>Inspection of documents</p> <p>Inspection of works</p>	In the course of material extraction	<p>Limiting erosion of slopes and degradation of ecosystems and landscapes;</p> <p>Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life.</p>	MDF, Construction supervisor
Generation of construction waste	Temporary storage of construction waste in especially allocated areas;	Construction site; Waste disposal site	Inspection	Periodically during construction and upon complaints	Prevent pollution of the construction site and nearby area with solid waste	MDF, Construction supervisor

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	Timely disposal of waste to the formally designated locations					
Traffic disruption and limitation of pedestrian access	Installation of traffic limitation/diversion signage; Storage of construction materials and temporary placement of construction waste in a way preventing congestion of access roads	At and around the construction site	Inspection	In the course of construction works	Prevent traffic accidents; Limit nuisance to local residents	MDF, Construction supervisor
Cleansing of newly laid pipes and reservoir	Dissolution or chemical deactivation of disinfecting solvent; at allowable concentration of residual chlorine in drinking water prior to release	End points of pipelines	Inspection of cleansing works	In course of pipeline washing by the time of completion of their installation	Prevent pollution of soil, ground water and surface water with concentrated chlorine	MDF, Construction supervisor
Workers' health and safety	Provision of uniforms and safety gear to workers; Informing of workers and personnel on the personal safety rules and instructions for operating machinery / equipment, and strict compliance with these rules/instructions	Construction site	Inspection	Unannounced inspections in the course of work	Limit occurrence of on-the-job accidents and emergencies	MDF, Construction supervisor

Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
OPERATION PHASE						
Maintenance of rehabilitated water supply system	<p>Installation of warning/ notification signs;</p> <p>Demarcation and installation of special fences and signs around the bore holes and the reservoir to protect sanitary norms and quality of water;</p> <p>Disposal of waste from the repair works to the designated landfill.</p>	Rehabilitated pipe system	Visual inspection	During maintenance works	Prevent accidents and disruption at water supply systems	UWSC
Safe functioning of the water supply disinfection system via chlorination	Operations & Maintenance Training upon facility start-up is executed by works contractor.	Potable water treatment facility	Inspection	Upon start-up of water supply system operation	Prevent environmental damage due to operational and emergency release of chlorine	UWSC

Annex 1 – photo materials and situation plan of the SP

Location for water pipeline



Location for water pipeline



Location for water reservoir

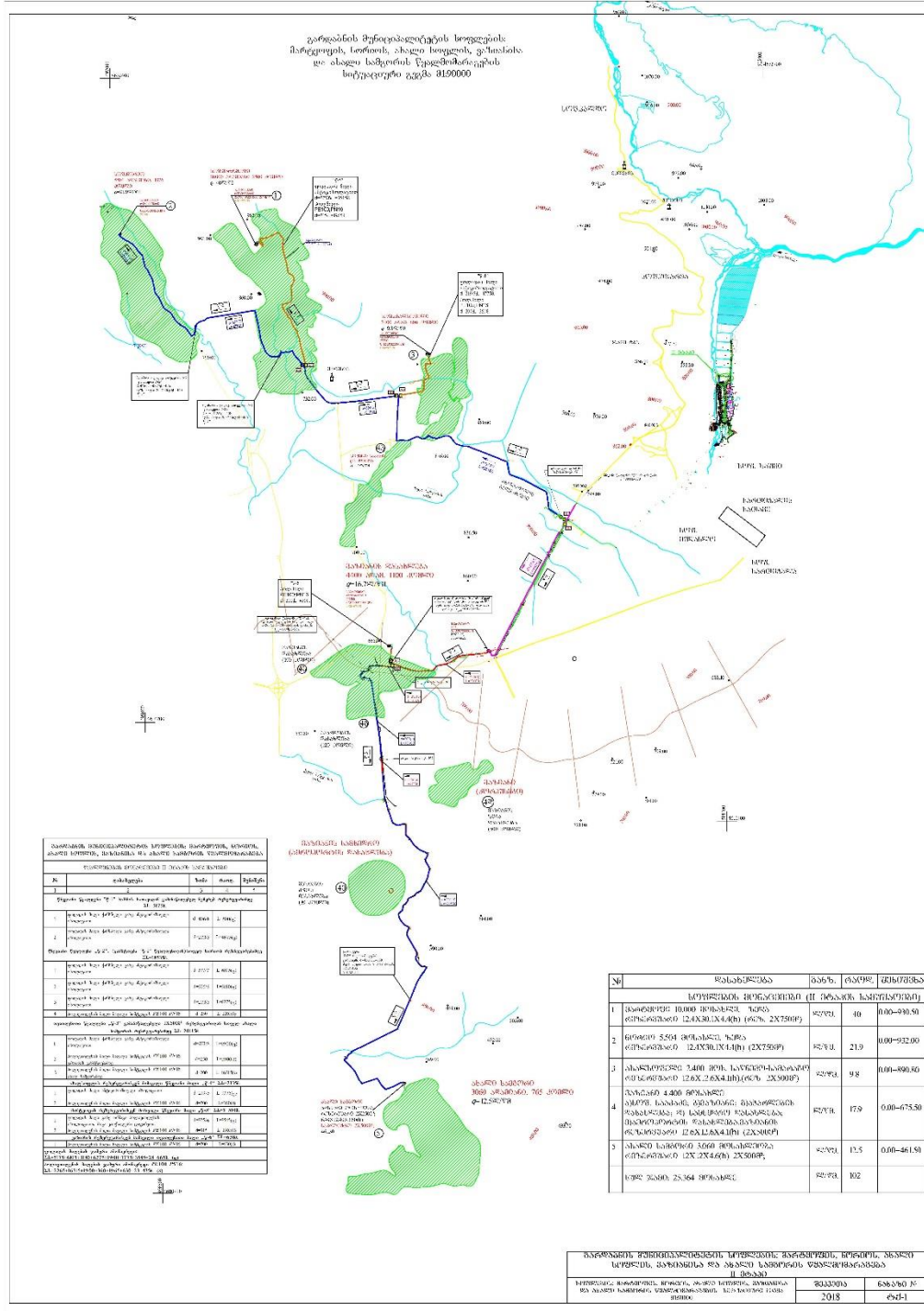




Ortho-photo of the SP site



Situation Plan



Letter from Gardabani Municipality



საქართველო
გარდაბნის მუნიციპალიტეტის მერია
GEORGIA
GARDABANI MUNICIPALITY CITY HALL



N 04/4378
10/05/2018

4378-04-2-201805101224



საქართველოს მუნიციპალური განვითარების ფონდის
აღმასრულებელ დირექტორს
ბატონ გალაქტიონ მუაძეს

ბატონო გალაქტიონ,

როგორც თქვენთვის ცნობილია, 2017 წელს გარდაბნის მუნიციპალიტეტის სოფლებში (ნორიო, მარტყოფი, ახალსოფელი, ახალი სამგორი და ვაზიანი) დაიწყო მრავალწლიანი წყალმომარაგების პროექტი. ამ ეტაპზე მიმდინარეობს აღნიშნული პროექტის I ეტაპის სამუშაოები (სოფელ ახალსოფლის, ნორიოსა და მარტყოფის წყალმომარაგების ქსელის მშენებლობა). ხოლო რაც შეეხება II ეტაპის სამუშაოს, მოხდა პროექტის კორექტირება და გარდაბნის მუნიციპალიტეტისა და საქართველოს მუნიციპალური განვითარების ფონდის შორის გაფორმდა საინვესტიციო დაფინანსების ხელშეკრულება. შესაბამისად II ეტაპის სამუშაოების განხორციელება მოხდება თქვენს მიერ.

გთხოვთ II ეტაპის სამუშაოების დაწყებისთვის მოახდინოთ შესაბამისი პროცედურების დაწყება. ხოლო რაც შეეხება აღნიშნული პროექტის იმ ნაწილს, სადაც საჭიროა წყალსადენი მილის გადაკვეთის წერტილების ტექნიკური ნებართვების აღებას შესაბამის ორგანიზაციებთან, აღნიშნულ საკითხის უზრუნველყოფა ეტაპობრივად მოხდება ჩვენი მუნიციპალიტეტის მიერ მშენებლობის პროცესში.

გარდა ამისა, მუნიციპალიტეტს დაწყებული აქვს სახელმწიფო ტყის ფონდიდან შესაბამისი ნებართვის აღების პროცედურა სპეციალური სარეგულირებისათვის. მუნიციპალიტეტი ასევე უზრუნველყოფს პროექტის ფარგლებში გათვალისწინებული ხეების მოჭრის ნებართვის გაცემას.

რევაზ ეგაძე

h. egadze

მუნიციპალიტეტის მერი - მ.მ.

საქართველო, გარდაბანი 1300, დ. აგმაშენებლის ქ. 127. ტელ: (+995) 595-24-26-62
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127 D. Agmashenebeli str. Gardabani 1300, Georgia Tel: (+995) 595-24-26-62

Letter

#04/4378

10/05/2018

From: Gardabani Municipality City Hall

To: Galaktion Buadze, Executive Director of the Municipal Development Fund of Georgia

Dear Mr. Buadze,

As you are aware, in 2017 a sustainable water supply project was launched in Gardabani Municipality villages Norio, Martkopi, Akhalsopeli, Akhali Samgori and Vaziani. Currently Stage I works for the named project are ongoing, which involves construction of water supply networks for villages Norio, Martkopi and Akhalsopeli. As for the Stage II works, the design was revised and an Investment Funding Agreement was signed between Gardabani Municipality and Municipal Development Fund of Georgia, therefore Stage II works will be implemented by your organization.

Please, initiate procedures for commencement of Stage II works. As regards that part of the named project, which requires technical permits for water supply pipe crossing points to be issued by appropriate bodies, the above-referred issue will be gradually solved by our Municipality in course of construction works.

Moreover, the Municipality has commenced proceedings for obtaining a special purpose permit from the National Forestry Fund. The Municipality will also provide for issuance of tree cutting permit for project-affected area.

Revaz Egadze,

Acting Mayor of Gardabani Municipality

Chemical and sanitary analysis of water

საინჟინერო-გეოლოგიური და გეოქიმიური ინსტიტუტი
საქართველოს რესპუბლიკის
ბანაკი

საინჟინერო-გეოლოგიური და გეოქიმიური ინსტიტუტი

ცხრილი

ოკრუტი ილიის ქობულეთის წყარო
 აღმოსავლელი ქვბ
 აღმოსავლელი 4.08.16 მასშტაბი 1:10

ანოტირება	შემაჯავრობა ლიტრში		
	მგ/ლ	მგ/დმ	მგ/დმ %-%ში
Cl	20.4	0.58	5.60
SO ₄	119.3	2.48	23.94
HCO ₃	445.3	7.30	70.46
ჯამი	585.0	10.36	100.00
კათიონები	შემაჯავრობა ლიტრში		
	მგ/ლ	მგ/დმ	მგ/დმ %-%ში
Na+K	49.6	2.16	20.85
Ca	140.3	7.00	67.57
Mg	14.6	1.20	11.58
ჯამი	204.5	10.36	100.00
საერთო მინერალიზაცია, მგ/ლ	409		
მაკრონი ნაშთი ბაზოქიმიური 105°C, მგ/ლ	0.3240		

სინისტა ბრადუსები-მგ/დმ
 სპიტი 22.8° ± 8.20
 კარბონატული 20.4° - 7.30
 PH 7.2
 სანიტარული ანალიზი
 ბაქტერიოლოგია ქვბ
 შივი ქვბ
 სანიტარული 0.0
 ბაქტერიოლოგია 0.0
 ნაწილი ახ. აქვს
 ცვლილებანი მზაარ მომთავრობანი
 NH₄ მგ/ლ 0.0
 NO₂ მგ/ლ 0.0
 NO₃ მგ/ლ 0.0
 O₂ მგ/ლ 3.2
 CO₂ ატმოსფერული

მაკრონი შეცვლადების შორის:

M_{2.4} HCO₃ 70 SO₄ 24
 Ca 67 NO₃ 21

შედეგი:

წყარო ნორმატივი მიწისაქვეაში მდ = 0.4 გ/ლ და ორანჯ კონტეინერში
 სინისტა (22.8°) აქ მინერალიზაცია - სეციკული - ქვიშა - ნიქსიანი
 წყარო ახ. კონტეინერში სინისტა კონტეინერში აქ ახალი სინისტა
 მიწის გვირგვინი ენერჯი O₂ = 3.2, (pH = 7.2)
 Fe²⁺ + Fe³⁺ = 0.05 მგ/ლ

წყარო შივი აქოქიმიური იქნის სინისტა-სეციკული მიწისაქვეაში

Na+K ბაქტერიოლოგია სეციკული

