

Sub-Project: Rehabilitation of **Tsalka** Water Supply System
Municipality: **Tsalka** Municipality

Annex 1. Environmental Management Plan

Activity	Potential Negative Impact or Concern	Mitigation Opportunities	Cost	Responsibility for Implementation	Responsibility for Monitoring and Enforcement
Rehabilitation – Water Supply System	Material Transport – (i) construction materials – dust, fumes; (ii) traffic – noise, fumes, congestion	Cover trucks carrying construction materials; Haul materials in off peak traffic hours.	Minimal	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Construction Site Noise and Vibration	Comply with local noise regulations; Limit activities to daylight working hours (7 am to 6 pm or as agreed with the local community and relevant authorities) ; Use noise mufflers on equipment; Provide workers with hearing protection and manage their exposure; Ensure proper maintenance of machinery and vehicles to keep their noise at a minimum.	Minimal	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Dust	Water construction site and material storage sites as appropriate; Clean sites upon completion of activities; Remove excess materials from site.	Minimal	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Traffic Disruption	Develop a traffic management plan with appropriate measures to redirect traffic. Diversion measures should be easily seen and easy to follow. Liaise with traffic police.	Minimal	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Reduced pedestrian access to adjacent areas	Provide safe alternate access to roadside areas adjacent to construction, inc. detours/ walkways as necessary. Establish work sequence and methods (trench-to-truck, steel plates) to minimize access		works contractors	MDF; UNITED WATER SUPPLY COMPANY OF

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		disruption.			GEORGIA
	Vehicle and pedestrian safety	Provide appropriate lighting and well defined safety signs.	Minimal	works contractors;	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Water and soil pollution from improper material storage, management and use.	Organize and cover material storage areas; Isolate works from water courses by using sealed formwork;	Minimal	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Improper disposal of waste materials and potential water and soil pollution	Dispose of waste material from the construction site in accordance with local environmental regulations and at sites approved by the Tsalka Municipality.	Dependent on disposal location	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Potential contamination of soil/ water from improper maintenance and fueling of equipment, or breakage of sewage pipelines	Ensure proper handling of lubricants, fuel and solvents - store tanks and drums on 110% capacity bases; forbid pouring into soils or drains. Ensure proper loading of fuel and maintenance of equipment. Manually excavate areas running over sewage pipelines. Supervision by Tsalka Water Utility company.	Minimal	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Construction run-off leading to sol/ water pollution	Provide adequate runoff and drainage control; Replace all vegetation destroyed and restore all trench surfaces.	Minimal	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Damage to vegetation	Replace all vegetation destroyed; Use authorized wood sources only.	Depends on what needs to be replaced	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA
	Safety of workers	Provide workers with safety instructions and protective equipment (e.g. anti dust mouth and	Minimal	works contractors	MDF; UNITED WATER

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		chin masks if necessary, hearing protection). Organize the safe bypass of traffic around the construction area.			SUPPLY COMPANY OF GEORGIA
	Temporary water supply interruptions	Establish coordination procedures for cut-offs; minimize time for replacement operations; use night time scheduling as necessary.	Minimal	works contractors	MDF; UNITED WATER SUPPLY COMPANY OF GEORGIA

Annex 2. Environmental Monitoring Plan

Phase	What? <i>(parameter is to be monitored)</i>	Where? <i>(is the parameter to be monitored)</i>	How? <i>(is the parameter to be monitored /type of monitoring equipment/?)</i>	When? <i>(is the parameter to be monitored – frequency of measurement or continuously)</i>	Why? <i>(is the parameter to be monitored (reply is not obligatory))</i>	Cost	Responsible Institution
Material transport	Truck loads covered/ wetted Hours and routes defined for deliveries	Construction site	Supervision	Unannounced inspections during work hours	Assure compliance with HSE requirements. Ensure safety, and minimize traffic disruption.	Minimal	Works contractors; MDF
Noise	Noise levels; Equipment;	Construction site; nearest homes	Inspection; noise measuring device	Periodic (average once per week); Following complaints	Assure compliance with HSE requirements.	Minimal	Works contractors; MDF
Vibration	Work hours.	Construction site	Supervision	Unannounced inspections; following complaints	Assure compliance with HSE requirements.	Minimal	Works contractors; MDF
Dust	Air pollution (solid particles, suspended solids, flying heavy metal particles)	At or near construction site	Visually	During material delivery and periodically in dry periods during construction	Assure compliance with HSE requirements.	Minimal	Works contractors; MDF
Traffic disruption	Existence of traffic management plan Traffic patterns	At or near construction site	Inspection; observation	Before works start; once per week at peak and non peak periods.	Assure compliance with HSE requirements.	Minimal	Works contractors; MDF

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Vehicle/ pedestrian access	Alternate access provided	Construction site	Supervision	During construction	Assure compliance with HSE requirements.	Minimal	Works contractors; MDF
	Visibility/ appropriate signs	Construction site	Observation	Once per week in the evening			
Material storage, handling, use	Water and soil quality (suspended solids, oils, etc)	Run off from site; material storage areas; wash down areas	Gravity; Observation	During material delivery and periodically during construction (average 1/week), especially during precipitation (rain/ snow/ etc).		Minimal	Works contractors; MDF
Waste disposal	Licensed disposal site	Disposal site	Inspection	Before works start		Minimal	Works contractors; MDF
	Water and soil quality (suspended solids, oils, fuels, lubricants, etc)		Observation	Periodically during construction and on complaints			
Equipment maintenance and fueling	Water and soil quality (suspended solids, oils, fuel, etc)	Run off from site; material storage areas; wash down areas; equipment maintenance facilities	Gravity; Observation	During material delivery and periodically during construction (average 1/week), especially during precipitation (rain/ snow/ etc).		Minimal	Works contractors; MDF
Worker safety	Protective equipment. Organization of traffic by-pass	Construction site	Inspection	Unannounced inspections during works	Assure compliance with HSE requirements.	Minimal	Works contractors; MDF

Appendix 3. Environmental Management Plan

A.1. General Review

Objective

The overall objective of the European Investment Bank support for municipal development in Georgia is to increase the effectiveness of participating Local Government Units in identification, planning, delivery and cost recovery for local infrastructure and utility services.

Background

The project provides additional capital resources to finance the economically justifiable rehabilitation and repair of existing local urban infrastructure such as roads, water and sewage systems, and street lighting. Local Government Units must be able to meet agreed creditworthiness criteria to be eligible for funding. Investments are expected to contribute to the improvement of public health and the creation of a better living environment for the inhabitants of Local Government Units participating in the project.

A.2. The Project

The project includes:

- 500 m³ Reservoir Civil Works;
- Reservoir Piping;
- Pipeline connections;
- Guard House;
- Chlorination Building & Equipment; Electrical Equipment & PLC;
- Calcium Hypochlorite Ca(OCl)₂ – Dosing Station & SCADA System;
- Reservoir Territory Lighting;

- Site Security Fence;
- Connection of reservoir Inlet Pipes and Outlet Pipes to Existing D300mm & D250mm Steel Pipes;
- Arrangement of flow meter chamber;

B. Legislation and Regulations

According to Georgian legislation, rehabilitation of water supply system does not require Environmental Impact Permit. The project is agreed with **Tsalka Municipality**. All works will be carried out in compliance with Georgian legislation and EIB requirements.

C. Potential Environmental Impacts

The project will have neutral environmental impact. The main environmental issues associated with this project relate to the potential impacts during construction.

C.1. Potential Impacts - Construction Phase

- Construction waste generation. The existing pipes will be replaced, although the old pipes will not be removed but left at place alongside the newly installed network pipes. This will significantly reduce construction waste generation. However, some amount of construction wastes (insulation materials, spoil left after backfilling, garbage etc.) will be produced during construction. The amount and expected type of wastes (mainly, non-hazardous inert construction materials) determines that no special waste management plan is required. However, the wastes should be properly treated to minimize pollution risks.
- Dust and Fumes. Dust and fumes may be a concern linked to material supply, material transport and at the construction site, both for workers and people working in the surrounding areas.
- Noise and Vibration. Disturbance to residents and workers as a result of construction noise and vibrations.

- Traffic Disruption. There will be an additional traffic load on adjacent streets, and reduced traffic access on the streets where rehabilitation works will be carried out during construction. Traffic may also be impacted by material transport activities.
- Water and Soil Pollution. Contractors will be required to organize and cover material storage areas and to isolate wash down areas from watercourses by selecting areas that are not free draining into any watercourse. Contractors will ensure the proper handling of lubricants, fuel and solvents.
- Safety and Access. There will be reduced access to areas adjacent to construction and potential hazards to vehicles and pedestrians during construction downtime.

D. Environmental Management Plan

This Environmental Management Plan (EMP) has been prepared to ensure that negative environmental impacts associated with this project are minimized. A summary of mitigation measures is provided in Annex 1.

D.1. Mitigation

Construction

- Dust and Fumes. Licensed material supply sites will be used. Materials transported to site will be covered/ wetted down to reduce dust. The construction site will be watered as appropriate as protective equipment will be provided to workers as necessary.
- Noise and Vibration. Activities will be limited to daylight working hours to reduce impacts.
- Traffic Management. A traffic management plan will be developed together with the local traffic police. Materials will be transported to site in off peak hours.
- Water/ Soil Pollution. Contractors will be required to organize and cover material storage areas and to isolate wash down areas from watercourses by selecting areas that are not free draining into any watercourse. Contractors will ensure the proper handling of lubricants, fuel and solvents.

- Waste. All waste from the construction site will be disposed of in accordance with local environmental regulations and at sites approved by the environmental authority (municipal environmental authority and/or regional services of the MoE).
- Safety and Access. Alternate access will be provided for vehicles and pedestrians. Appropriate lighting and signs will be employed.

Operation

- Wastewater. Less water would be extracted and hence less water would be discharged.

D.2. Monitoring

The monitoring plan for the project is summarized in Annex 2. Monitoring measures include site supervision, verification of permits, monitoring of noise, dust and air emissions.

The capacity of the PIU to monitor environmental compliance is assessed as adequate. The PIU's construction supervisors are responsible for environmental monitoring and they work closely with the municipality and Tsalka Local Self-Governance Municipal Economy Service.

E. Implementation Arrangements

Overall responsibility for the coordination and implementation of the EMP will be with the PIU. As such they will be responsible for liaising with local environmental authorities, municipalities, the local community and the contractors engaged for construction on environmental issues associated with the implementation of this EMP and the Environmental Guidelines for Contractors.

The PIU will be responsible for ensuring that the following requirements are met: (i) Georgian environmental regulations; (ii) environmental permits are obtained; (iii) waste is disposed to a licensed disposal site; (iv) any other requirements identified by the Ministry of Environment and agreed with the PIU; and (v) the Environmental Management and Monitoring Plans are implemented.

1.1. H. Approval of the Project by the City Authorities

The project was agreed with municipality.