

Georgia:
Georgia Sustainable Wastewater Management Project

**Terms of Reference for
International Consulting Services for Technical Assistance in the
Wastewater Sector for United Water Supply Company of Georgia**

1. Background

During the past two decades, Georgia has assumed its responsibilities as an independent state, many of which had previously been carried out in a centralized manner within the Soviet Union. As part of the independence process, institutions at the federal, regional and local levels have been established (or adjusted) and their respective capacities further developed. This process is ongoing, according to its comprehensive nature. In some cases, the Government of Georgia has sought assistance from international financing institutions (IFIs), to improve and accelerate the transformation.

Likewise, the water and wastewater sector in Georgia is also in transition with institutional mechanisms being established and/or consolidated and professional capacities increased over time. Indeed, gaps remain in drinking water supply and wastewater service coverage and levels to consistently secure the basic needs and public health of the general population (and safeguard the natural environment) in urban as well as rural areas. Therefore, to achieve real improvements in community water supply and wastewater services, the Government of Georgia is joining with various IFIs, regarding the financing and sustainable realization of needed community infrastructure, as well as the related institutional capacities.

The Municipal Development Fund of Georgia (MDF) is the implementing agency for the Sustainable Wastewater Management Project (SWMP) and the Second Regional and Municipal Development Project (SRMIDP). Under the SWMP is supporting the construction of two Waste Water Treatment Plants in Telavi and Tskaltubo, while SRMIDP offer improvements in a wide range of municipal assets.

While the SWMP is managed by MDF, the beneficiary of the assets, delivered by the project, is the United Water Supply Company of Georgia (UWSCG).

This assignment is complementary to the SWMP and the consultant is responsible to maintain constructive coordination with the MDF to maintain activities complementary to the SWMP.

Brief Description of WWTP Technology

The technology for treatment of the sewage water in the two cities is based on degradation of the organic content in the water and in the First phase of the projects (until the year 2030) and it is limited to only carbon elimination.

The biological process for cleaning of the water is mainly realized with trickling filters, where the bacterial activity results in total degradation of the organic carbon compounds.

The cleaning technology consist of the following steps:

1. Pre-treatment, which provide the mechanical cleaning of the waste water. It is realized with the Fine screens and Grit (Sand) trap for the screenings and sand removal
2. Biological treatment, which provides biological cleaning of the waste water. It is realized with the Anaerobic ponds, Trickling filters and Secondary sedimentation tanks
 - In the Anaerobic ponds the sedimentation of the settable solids take place and the anaerobic process of digestion of the settled at the bottom primary sludge mixed with the recirculated from the Secondary sedimentation tanks secondary sludge, occurs. The digested sludge is periodically removed to the Sludge drying beds
 - In the Trickling filters the sewage water enters in contact with the biological (bacterial) population. The biological population grows intensively on the base of the organic content and the intensive oxygen supply provided with the free air circulation in the filters.
 - The Secondary sedimentation tanks separate the sludge from the clean effluent in the water coming from the Trickling filters. The produced scum sludge on the water surface is transported to the Sludge drying beds and the settled on the bottom is transferred to the Anaerobic ponds. The clean effluent is directed to the outfall pipeline and transported to the accepting water body (river, basin, etc.)
3. Sludge treatment – the waste will mainly comprise of sludge generated from purification of wastewater. Use of processed sludge as fertilizer may be considered in a long-term perspective, while its disposal at the municipal landfill is the only option in the initial stage of WWTP operation. Sludge disposal at the nearest landfills is agreed with the Solid Waste Management Company of Georgia operating under the Ministry of Regional Development and Infrastructure. In a longer-term perspective, dry sludge may go to the new regional landfills.

2. Objective of the assignment

The main objective of this assignment is to support UWSCG, the final beneficiary and operator of the plants with operation of the 2 facilities and to increase UWSCG staff capacity and competence to better manage and operate systems for treatment of wastewater. Specific emphasis shall be made to define cost saving and revenue generation techniques due to efficient use of assets and technology during the full, four seasonal climatic variations.

3. Scope of Works

The Consultant shall support UWSCG headquarters and respective service centers to complete the activities listed below. For each activity listed below, the Consultant shall conduct minimum ½ day workshop for UWSCG headquarters and Service Centers to present the draft findings/recommendations and gain approval thereof and prepare the written minutes.

The On-the-job type trainings shall take place in Telavi and in Tskaltubo, while the workshops shall be held and UWSCG Headquarters office.

Activity 1: Inception Phase

At the end of the inception period, the Consultant shall furnish an Inception Report detailing the items of the verified methodology, coordination with project entities, logistics and schedule to complete the consultant's assignment (consistent with the consultant's proposal), with a focus on the **Work Plan**. The Inception Report should provide clear information on the Work Plan, parallel tasks and allocation of personnel/resources.

Activity 2: Asset Management

The Consultant shall support the staff of UWSCG with asset management, which covers:

- Solutions: Presentation of suitable software/ hardware system specifications and cost estimates; development of protocols for a) record-keeping database and mapping, b) planning/ design, especially prioritization matrix for rehabilitation/ construction measures;
- Operational efficiency: In simple terms, WWTP can improve its financial standing either by increasing its revenues (e.g. increasing tariffs and / or collections) or by reducing its costs. It is important to identify realistic cost savings, improving the efficiency of existing infrastructure assets and the productivity of existing personnel including benchmarking against other similar utilities to identify areas for operational improvement (using benchmarking & tariff databases of IBNET, the International Benchmarking Network for Water and Sanitation utilities at www.ib-net.org, including updating/ registering the respective UWSCG service centers).

During this activity, the Consultant shall conduct at least one mission. At the end of this activity, the Consultant shall deliver an Asset Management Report, which shall cover *inter alia*, ½ day workshop materials & minutes, soft/ hard-ware specs & costs estimates, protocols: database-mapping; prioritization matrix; operational efficiency: IBNET Service center registration & comparisons

Activity 3: Collection Network Operations & Maintenance

During this activity, the Consultant shall:

- Review and comment on proactive techniques of **Proactive Check-List** of weekly, monthly, quarterly and annual Operations & Maintenance tasks to be conducted by each Service Centre; (alternatively, prepare such check-list if not existing)
- Assess current Service Centre and worker outfitting to conduct network O&M; prepare a bill of quantities, technical specifications and cost estimate for such outfitting (including but not limited to vehicles, equipment, tools and protective clothing) suitable to proceed with procurement.
- Conduct at least one mission and provide 1-day workshop (classroom theory and practical onsite components) on the application of the UWSCG Proactive Check-List (network O&M), including network infiltration & inflow and pump maintenance/ repair, incorporating wastewater evacuation unit, in both Tskaltubo and Telavi,

At the end of this activity, the Consultant shall furnish a report on Collection Network Operations & Maintenance Report, covering a Proactive Check-List, ½ day workshop materials & minutes, Outfitting needs & requirements, 1-day workshop materials & minutes, each in Telavi & Tskaltubo.

Activity 4: Wastewater Treatment Plant Operations & Maintenance

At this stage, the Consultant shall:

- Provide **on-the-job type training and trouble-shooting expertise** at functional WWTPs to all UWSCG staff foreseen for 2 SIDA-SWMP WWTP in one-week sessions at sites during four seasonal periods to demonstrate spring, summer, fall and winter climatic variations. Document all materials and daily subject matter in a training report with attendance list signed by trainers and trainees for each session.
- Review, comment and, upon written approval, adapt the O&M Manual & check-lists prepared by the WWTP contractor.

- Provide operational guidance to meet the Functional Guarantees, Health & Safety guidelines/ regulations (ensure adherence to the H&S policy; review H&S targets and strategy in order to improve performance; monitor H&S performance against targets) and environmental (requirements stated in laws, regulations, ordinances governmental or ministerial decrees, directives, or permits) compliance. Prepare /review all WWTP reporting requirements & submissions to government officials required for regulatory compliance; resubmit reporting forms as required.
- With all pertinent staff, review check-lists and conduct essential tasks, for: operations & maintenance of each facility-equipment; health & safety practices; environmental compliance.
- As annex to each Mission Report, prepare an itemized list of faults or gaps in the WWTP facilities, which qualify for rectification during the defects-liability period. items.

To complete this task, the Consultant shall conduct at least 4 missions. During the activity, the Consultant shall deliver the following reports:

- Mission Summary report, one per mission, recording detailed list of activities and participants (daily signed attendance list for all), topics (problems-solutions) with photos and detailed descriptions, defects-liability list, written reporting presentation to the UWSCG headquarters, Revised Operations & Maintenance Manual, used during each mission and ½ day workshop materials & minutes.
- At the end, Wastewater Treatment Plant Operations & Maintenance Proactive Check List & Training Report; Revised Operations & Maintenance Manual, the final version upon completion of the task. Copy of all reports submitted to government officials for regulatory compliance

4. Deliverables and Submission Dates

The Consultant shall furnish the following deliverables with the following timeline.

All reports must be submitted in English and Georgian in one hard copy and electronically to MDF and accepted by UWSCG in writing to make the amount payable. The Consultant shall allow two weeks for the Client and the Beneficiary to review each report and provide feedback.

Deliverable	Timeline
1. Inception Report. The report shall include the verified methodology, coordination with project entities, logistics and schedule of works	2 weeks after commencement of contract
2. Asset Management Report. The report shall cover inter alia, ½ day workshop materials & minutes, soft/ hard-ware specs & costs estimates, protocols: database-mapping; prioritization matrix; operational efficiency: IBNET Service center registration & comparisons	3 months after commencement of the contract
3. Collection Network Operations & Maintenance Report. The report shall include Proactive Check-List, ½ day workshop materials & minutes, Outfitting needs & requirements, 1-day workshop materials & minutes, each in Telavi & Tskaltubo.	6 months after commencement of the contract
4. Wastewater Treatment Plant Operations & Maintenance Report. The Report shall cover all deliverables, as described under Activity 4 of the Scope of Works Section above.	14 months after commencement of the contract

5. Duration of the Assignment

The duration of the assignment is 14 months.

6. Organization and Logistics

The Consultant shall be in charge of organizing qualified translation (verbal and written) from English to Georgian and visa versa for site visits, on-job-training, missions and other activities, provide accommodation and travel logistics for their staff to, from and within Georgia.

7. Client/UWSCG Contribution

The UWSCG shall:

- Provide a qualified UWSCG Project Manager, qualified and dedicated activity area, available for daily meetings, charged to take assignment decisions; availability of pertinent UWSCG management for one weekly meeting.
- Organize and provide logistics for any required workshops regarding the venue.
- Provide the WWTP operations staff with detailed responsibilities, which will interact with the consultant.
- Specify the WWTP facilities and technologies and make WWPT related documentation (including the reports from the Contractor and the Supervision Consultant) available to the Consultant to ensure successful implementation of this assignment.

8. Consultant Qualifications and input

The key staff of the consultant will have 10 years international experience in water & wastewater sectors.

Key Staff 1: Wastewater-Process-Civil Engineering qualifications (master's degree or higher is advantageous) and professional experience as wastewater utility technical manager or wastewater treatment plant operator including five (5) years' experience of operations responsibility for a WWTP with Anaerobic Ponds - Trickling Filter technology – plus in conducting training programs.

Key Staff 2: Business Administration/ Wastewater-Civil Engineering qualifications (master's degree or higher is advantageous) and professional experience as water – wastewater utility manager or company organizational specialist- and in conducting capacity building workshops for application of Asset Management per ISO 55000 & IIMM (Intl Infrastructure Management Manual); five (5) years' experience of operations responsibility for a WWTP (with Anaerobic Ponds - Trickling Filter technology an advantage) and sewage network.

Fluency in written and spoken English is necessary, with knowledge of Georgian language an advantage. Computer skills (word, excel at a minimum).

The following is an indicative minimum estimate of the staffing positions and levels that may be proposed:

N	Consultants	Number	Unit	Input, person*Day
1	Technical Manager	1	day	60
2	Process Engineer	1	day	60