

SEMI-ANNUAL ENVIRONMENTAL MONITORING REPORT

15 Semi-annual Report

(Reporting Period: July-December 2024)

Project Number: 43405-027

Loan Number: 3291/3292

**GEORGIA: URBAN SERVICES IMPROVEMENT INVESTMENT PROGRAM
(TRANCHE 5)**

(FINANCED BY THE ASIAN DEVELOPMENT BANK)

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

January 2025

ABBREVIATIONS

ADB	Asian Development Bank
CAP	Corrective Action Plan
DC	Design Consultant
DPEPSA	Department of Permits, Environmental Protection and Social Affairs
DMPFDO	Department of Management of Projects Financed by Donor Organizations
PMD	Projects Management Department
EA	Executing Agency
EARF	Environmental Assessment and Review Framework
EHS	Environmental Health & Safety
EIA	Environmental Impact Assessment
EIP	Environmental Impact Permit
EMP/ SSEMP	Environmental Management Plan/ Site-Specific Environmental Management Plan
ES/ EMS	Environmental Specialist/ Environmental Monitoring Specialist
GoG	Government of Georgia
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IPMO	Investment Program Management Office
USIIP	Urban Services Improvement Investment Program
IA	Implementing Agency
IEE	Initial Environmental Examination
MFF	Multi-tranche Financing Facility
MoEPA	Ministry of Environment Protection and Agriculture
MoRDI	Ministry of Regional Development & Infrastructure
NEA	National Environmental Agency
SC	Supervision Consultant
TN	Total Nitrogen
TP	Total Phosphorus
USIIP	Urban Sector Improvement Investment Program
UWSCG	United Water Supply Company of Georgia
WS	Water Supply
WSS	Water Supply & Sanitation
WWTP	Waste Water Treatment Plant

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I. INTRODUCTION

1.1 Preamble

1. This report represents the Semi - Annual Environmental Monitoring Review (SAEMR) for the Urban Services Improvement Investment Program (USIIP), Tranche 5 for the period of July-December 2024.
2. This report is the 15th Environmental Monitoring Review (EMR) of Tranche 5 under USIIP.

1.2 Headline Information

3. **The following projects are financed under USIIP/T5:**
 - Construction of Sewage System in Zugdidi (ZUG-02), started in February 2017, completed in August 2021;
 - Construction of Wastewater Treatment Plants in Zugdidi – REG-03a, started in February 2017, completed in September 2021;
 - Construction of Waste Water Treatment Plant in Mestia – MES-03 includes the preparation of the WWTP design, the contract completion date is April 17, 2025, and will be implemented by Government Financing.
4. During the reporting period, no civil work was carried out under the USIIP/T5, as all construction activities for the REG-03a and ZUG-02 sub-projects were completed in September 2021.
5. The contract (No. UWSCG-ICB-MES-03-2019) for the construction of the Waste Water Treatment Plant in Mestia was signed on November 5, 2019, with a joint venture between Toshiba Water Solutions Pvt. Ltd and IN-SI LLC (India/Georgia). The original contract completion date was April 2021, but it was later extended to June 4, 2021. However, no teams were mobilized to Mestia, and the contractor did not set up any site infrastructure. Additionally, there were delays in finalizing the design for the Waste Water Treatment Plant in Mestia. Ultimately, Amendment 01 was signed on 26th June, 2024, resolving the suspension issue and modifying the contract scope from design and build to design only. The new contractual completion date is set for April 17, 2025. The design preparation will be financed by the Government.

II. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project Description

6. 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.
7. The Investment Program improves infrastructure through the development, design and implementation of a series of subprojects, each providing improvements in a particular sector (water supply and/or sanitation) in one town. Sub-projects rehabilitate existing infrastructure and/or create new and expanded infrastructure to meet the present and future demand. Water supply improvements include source augmentation and head works, pumping systems, treatment facilities, transmission and distribution network; and, sewerage improvement works include sewer network, pumping stations, main collectors and waste water treatment plants.
8. **Tranche 5 of the Investment Program included:**
 - Construction of Sewage System in Zugdidi (ZUG-02);
 - Construction of Wastewater Treatment Plants in Zugdidi – REG-03a
 - Construction of Waste Water Treatment Plant in Mestia – MES-03
9. **Construction of Sewage System in Zugdidi (ZUG-02).** The Zugdidi wastewater project envisages the rehabilitation and extension of the sewer network with gravity sewers and pressure lines and the construction of wastewater pumping stations. The project measured for the sewer network comprise the laying of 160 km new gravity pipes (DN 100 to DN 800) and 9.7 km new pressure pipes (OD 110 and OD 630). There were 24 new wastewater pumping stations. The new network conveyed the wastewater to a new wastewater treatment plant, which was constructed under Reg-03 – Zugdidi (A) WWTP project.
10. The contract No P43405-ICB-Zug-02 was signed on February 1, 2017 with Ludwig Pfeiffer Hoch-und Tiefbau GmbH & Co.KG, initial completion date was 31st Jan 2020. The Contract has been extended till 2nd August 2021 through contract addendum no. 07 and was completed by that date.
Post Construction Environmental Audit under ZUG-02 Sub-project
11. The Post Construction Environmental Audit was conducted by Supervision Consultant – Posch and Partners Consulting Engineers in October 2023 under ZUG-02 sub-project, all non-compliances are eliminated by SC and UWSCG and there are no other problems.
12. **Construction of Wastewater Treatment Plant in Zugdidi (REG-03a).** The project comprises of the construction of new Wastewater Treatment Plant with the capacity of 22,000 m³/day.
13. The contract No UWSCG-USIIP-ICB-REG-03a was signed on February 1, 2017 with "JV "Pfeiffer - EMIT" comprised by "Ludwig Pfeiffer Hoch – and Tiefbau GmbH7Co. KG (Germany)" and "EMIT |Group – Ercole Marelli Impianti Tecnologici S.r.l. (Italy)".

14. The contractor, "Pfeiffer - EMIT," left the site at the end of 2021 due to bankruptcy in December 2021. No construction activities or physical progress took place until that time, resulting in incomplete work on certain parts of the sludge treatment stages. For example, the sludge thickener for excess sludge dewatering was not completed and causing problems with excess sludge extraction. Detailed information regarding the rectification of the aforementioned issues, including deadlines and progress of improvements, is provided in Table 2 below.

Post Construction Environmental Audit under REG-03a Sub-project

15. A post-construction environmental audit for REG-03a subproject was conducted by UWSCG/USIIP Environmental Specialist Ms. Kate Chomakhidze in November 2023 and further updated in December 2024 to reflect the corrective measures taken by UWSCG and SC/Posch to address the non-compliances identified in the PCEAR.

16. A summary of the non-compliances identified during the post-construction environmental audit and the status of corrective actions taken by UWSCG and SC/Posch up to the end of December 2024 is presented in the table below. The updated Post-construction Environmental Audit Report is included as Annex A to this report.

Table 2: Summary information about the non-compliances identified during the post-construction environmental audit

#	Issues	Corrective actions	Time for Improvement and Responsibilities	Status of corrective actions
1	The centrifuges, the gas line, the heating system for digester and the gas holder are not completed. Consequently, excess sludge, cannot be de-watered, which makes excess sludge extraction impossible.	A tender documentation for recovery of sludge dewatering system was prepared and submitted to UWSCG by SC/Posch The new tender can be launched in Q1 2025	December 2024 UWSCG	Completed, A tender documentation for rectifying the sludge dewatering system was prepared and submitted to UWSCG by SC/Posch end of December 2024, the new tender will be launched in Q1 2025
2	The huge sludge quantities in the system can no longer be kept and will lead to exceeding the effluent standards and further damages to the plant.	For procuring as Emergency Measures a bypass of the sludge line and commissioning of the centrifuges the tender documentation is prepared by SC/Posch	December 2024 UWSCG	Completed, A tender documentation was prepared and submitted to UWSCG by SC/Posch, end of December 2024, new tender will be launched in Q1 2025
3	Sine one year the fine screen is not operative anymore.	Procuring as Emergency Measures new	December 2024 UWSCG	Completed, A tender documentation was prepared and the tender was announced

#	Issues	Corrective actions	Time for Improvement and Responsibilities	Status of corrective actions
	This leads to problems in all downstream treatment stages of the plant. Urgent action is needed	screens, tender documentation is prepared and tender is already announced		by UWSCG, end of December 2024

17. Construction of Wastewater Treatment Plant in Mestia (MES-03). The project was comprised of the construction of new Wastewater Treatment Plant with the capacity of 3,200 m³/day.

18. The contract No UWSCG-ICB-MES-03-2019 was signed on 5 November 2019 with “JV of Toshiba Water Solutions Pvt. Ltd and IN-SI” LLC (India/Georgia)”. Contract completion date was April 2021. The contract became formally effective by 12th Dec 2019 after the Contractor agreed to postpone one of the preconditions for effectiveness, the “irrevocable confirmed letter of credit” to be submitted later (e.g. after design phase). The resulting initial contractual completion date was 04th June 2021. But no teams have been mobilized to Mestia, no site establishments for the contractor have been erected. There was delay in preparing final design of the Waste Water Treatment Plant in Mestia as well. Finally Contract activities were stopped. The Contractor was ordered to continue with detailed design from 31st of January 2022, but no progress was made by contractor. Finally on December 7, 2023, UWSCG applied to the ADB with a request for no objections to Amendment No. 1 to contract MES-03 (No. UWSCG-ICB-MES-03-2019). The amendment provided for the cancellation of the supply and installation/construction parts of the Mestia WWTP and leaving only the design part for execution. Based on the above, the ADB issued a no-objection to the contract amendment on February 8, 2024, which resulted in a reduction in the contract scope by changing the contract from design and build to design-only for the Mestia project. The new contractual completion date is April 17, 2025.

19. The main institutions that are involved in implementation of the EMP are UWSCG implementing agency (EA), Supervision Consultant (SC) the Contractor and to a lesser extent the Ministry of Environment and Natural Resources Protection (MoENRP).

20. The Investment Program Management Office (IPMO) under UWSCG which is the Department of Management of Projects Financed by the Donors Organizations, is responsible for the day-to-day management of the project, including the implementation of the EMP. IPMO has an Environmental Specialist, Ms. Kate Chomakhidze who is responsible for managing the environmental aspects of the USIIP/T5. The Deputy head of the department is Mr. Nodar Rostomashvili.

21. The IPMO Environmental Specialist (Ms.Kate Chomakhidze) responsibilities in respect of implementation of the EMP are as follows:

- (i) Approve the Site-Specific Environmental Management Plan (SSEMP) before Contractor takes possession of construction site;
- (ii) Monitor implementation of EMP and ensure the environmental safeguards compliance;
- (iii) Review the updated IEE and/or SEMP and send it for clearance to ADB;
- (iv) Ensure that contractors have access to the EMP and IEE report;

- (v) Finalize SAEMRs (and Final EMRs upon project completion), send it to ADB and address potential ADB's comments until SAEMR disclosure; Provide ENG and GEO final versions of SAEMRs to be uploaded on UWSCG website;
- (vi) Review and approve the Corrective Action Plan and provide to ADB for review and comments if any;
- (vii) Participate in public consultations during project implementation;
- (viii) In case of need assist IPMO Social/Resettlement Consultant in resolving process of environmental safeguards related complaints;
- (ix) Assist in organizing trainings for the Contractors in coordination with ADB/RETA consultant;
- (x) Participate in external trainings in environmental management and environmental auditing

22. The SC/Posch includes a full time Environmental Specialist, Ms. Eliso Barnova to assist the IPMO supervise and monitor implementation of the EMP during construction.

23. The Contractors under USIIP/T5 also appointed a full time Environmental specialist Mr. Nikoloz Neparidze (for ZUG-02 and ZUG-03a sub-projects) to be a senior member of the construction management team based on site for the duration of the contract. The ESs a university degree in Environmental Science and related discipline and have about 10 years work experience in environmental management of infrastructure project

24. Department of Permits, Environmental Protection and Social Affairs is working alongside IPMO to address the environmental and social issues of USIIP. The head of the department is Ms. Maka Goderdzishvili. The Department of Environmental Protection have two divisions, the Division of Permits and the Division of Environmental Protection and Social Affairs. Ms. Salome Mosidze is the Head of the Division of Environmental Protection and Social Affairs. More detailed description of implementation arrangements; responsibilities and staffing are provided in the Table 1 below.

Table 1: Institutional Arrangement, Responsabilités and Staffing

#	Millstones/Actions	Contractor (Environmental Specialist)	Construction Supervision Consultant (Environmental Specialist)	IPMO (Environmental Specialist)	Department of Permits, Environmental Protection and Social Affairs (Environmental Specialist)
1	Environmental planning and management Contractors Environmental Management Plan (site-specific EMP)	Prepare Specific EMP (SEMP) with supplemented Topic Specific EMPs at pre-construction stage based on IEE/EMP Implement SEMF approved by IPMO.	Review and endorse the SEMF; Monitor implementation of SEMF on daily basis; Monitor monthly environmental monitoring reports or results prepared by the Contractor and report to IPMO.	Review and approve the SEMFs; Monitor implementation of EMP and ensure the environmental safeguards compliance.	Work together with IPMO on addressing the environmental non-compliance issues, if any.
2	Changes in design	Provide details of design changes to CSC required to update IEE/EIA, or SEMF; Implement updated SEMF.	Approve the design change to be submitted to IPMO; Make environmental assessment of the change and update the IEE and/or SEMF.	Review the updated IEE and/or SEMF and send it for clearance to ADB	Liaise with CSC in preparing updated IEE and/or SEMF; Upload the approved IEE/SEMF provided by IPMO to UWSCG website for Public Disclosure.
3	Unanticipated impacts	Inform CSC about unanticipated impact and follow the instructions received from IPMO.	Make environmental assessment of the unanticipated impact and update the IEE and/or SEMF	Review the updated IEE and/or SEMF and send it for clearance to ADB	Liaise with CSC in preparing updated IEE and/or SEMF

#	Millstones/Actions	Contractor (Environmental Specialist)	Construction Supervision Consultant (Environmental Specialist)	IPMO (Environmental Specialist)	Department of Permits, Environmental Protection and Social Affairs (Environmental Specialist)
4	Reporting	Prepare monthly environmental monitoring reports and send it to CSC and IPMO	<ol style="list-style-type: none"> 1. Prepare inputs to environmental part of quarterly construction progress reports; 2. Prepare inputs to semi-annual environmental monitoring report (SAEMR) to be submitted to IPMO for further review, comments and improvement. 3. Conduct Post-Construction Final Environmental Audit and prepare final environmental audit report. 	<ol style="list-style-type: none"> 1. Finalize SAEMRs (and Final EMRs upon project completion), send it to ADB and address potential ADB's comments until SAEMR disclosure; 2. Provide ENG and GEO final versions of SAEMRs to be uploaded on UWSCG website. 	Upload the approved reports (ENG and GEO) provided by IPMO to UWSCG website for Public Disclosure
5	Permits and clearances	NA	NA	NA	Obtaining environmental permits and clearances
6	Non-compliances	Prepare a corrective action plan (CAP)	Assist contractor in preparing the CAP.	Review and approve the CAP and provide to ADB for review and comments if any.	
7	Public consultations	Participate in public consultations during project implementation	Organize public consultations: inform people about activities and prepare the record of consultations.	Participate in public consultations during project implementation	UWSCG & IPMO host PCs, CSC will present the topics related to environmental issues

#	Millstones/Actions	Contractor (Environmental Specialist)	Construction Supervision Consultant (Environmental Specialist)	IPMO (Environmental Specialist)	Department of Permits, Environmental Protection and Social Affairs (Environmental Specialist)
8	Grievance Redress Mechanism	Project site Focal person to record environmental grievances in the logbook and follow up with UWSCG established practice for grievance redress	<ol style="list-style-type: none"> 1. Ensure that grievances, if any, are being properly documented and addressed timely and effectively. 2. Assist IPMO to develop consolidated GRM database and consolidation of GRM cases both for ENV and Social safeguards 	In case of need assist IPMO Social/Resettlement Consultant in resolving process of environmental safeguards related complaints; Assist IPMO Social/Resettlement Consultant in GRM database consolidation and data analysis.	UWSCG maintains GRM applicable to all projects. UWSCG will ensure IPMO information on grievances is consolidated into the UWSCG grievances (both - environmental and social) without duplication.
9	Trainings	Attend on-site trainings organized by IPMO and ADB/RETA Consultant	Assist the IPMO in organization of trainings for the Contractors on environmental safeguards requirements.	Organize trainings for the Contractors in coordination with ADB/RETA consultant. Participate in external trainings in environmental management and environmental auditing	Participate in external trainings in environmental management and environmental auditing

25. Main organizations involved in the USIIP/T5 and related to environmental safeguard are presented in the table 2 below:

Table 2: List of Main Organizations under USIIP/T5

Type of project participant	Name of Agency/Company	Environmental Staff	Name and contact details
Lender	Asian Development Bank	Country Environmental Focal	Ninette R. Pajarillaga E-mail: npajarillaga@adb.org
		Safeguards Officer Georgia Resident Mission Asian Development Bank	Nino Nadashvili Tel: +995 595 070442 nnadashvili@adb.org
		ADB RETA, Environmental Consultant	George Kobaladze Tel: +995 599 689834 E-mail gkobaladze.consultant@adb.org, me
Borrower	UWSCG	UWSCG, Department of Permits, Environmental Protection and Social Affairs, Head	Ms. Maka Goderdzishvili Tel: +995 599 229925 E-mail: m.goderdzishvili@water.gov.ge
		UWSCG/IPMO Department of Management of Projects Financed by Donor Organizations, Deputy Head	Mr. Nodar Rostomashvili Tel: +995 597 181111 E-mail: n.rostomashvili@water.gov.ge
Borrower	UWSCG/USIIP/T5	Environmental Specialist	Ms. Ketevan Chomakhidze Tel: +995 577 380309 E-mail: Chomakhidzek@yahoo.com

Type of project participant	Name of Agency/Company	Environmental Staff	Name and contact details
Supervision Consultant	Posch&Partners Consulting Engineers	Environmental Specialist:	Ms. Eliso Barnova Tel: +995 551 300112 E-mail: tikozhizhiashvili@yahoo.com
Contractor ZUG-02	Ludwig Pfeiffer Hoch-und Tiefbau GmbH & Co.KG	Environmental H&S Specialist	Mr. Nikoloz Neparidze Tel: +995 599 346821 E-mail: nikoloz.neparidze@ludwigpfeiffer.com
Contractor REG-03a	JV "Pfeiffer - EMIT" comprised by "Ludwig Pfeiffer Hoch – and Tiefbau GmbH7Co. KG (Germany)" and "EMIT Group – Ercole Marelli Impianti Tecnologici S.r.l. (Italy)	Environmental H&S Specialist H&S Specialist	Mr. Nikoloz Neparidze Tel: +995 599 346821 E-mail: nikoloz.neparidze@ludwigpfeiffer.com Mr. Irakli Abuladze Tel: +995 568 012858 E-mail: irakli.abuladze.1974@gmail.com

2.3 Project Activities During Current Reporting Period

26. During the reporting period, no construction work was carried out under USIIP/T5, as all construction under REG-03a and ZUG-02 had already been completed.

2.4 Description of Any Changes to Project Design

27. The contract (No. UWSCG-ICB-MES-03-2019) for the construction of the Waste Water Treatment Plant in Mestia was signed on November 5, 2019, with a joint venture between Toshiba Water Solutions Pvt. Ltd and IN-SI LLC (India/Georgia). The original contract completion date was April 2021, but it was later extended to June 4, 2021. However, no teams were mobilized to Mestia, and the contractor did not set up any site infrastructure. Additionally, there were delays in finalizing the design for the Waste Water Treatment Plant in Mestia. Ultimately, contract activities were terminated in February 2024.

III. ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

28. No construction activities have been implemented during the reporting period under USIIP/T5.

3.2 Site Audit

29. Post-construction Environmental Audits were carried out under REG-03a and ZUG-02 sub-projects in November-December 2023. The Post-construction Environmental Audit Reports will be updated in Q1 2025 following the resolutions of the non-compliances identified in the table 2 above.

3.3 Issues Tracking (Based on Non-Conformance Notices)

N/A

3.4 Trends

N/A

3.4 Unanticipated Environmental Impacts or Risks

N/A

IV. RESULTS OF ENVIRONMENTAL MONITORING

4.1 Overview of Monitoring Conducted during Current Period

- 30.** No Environmental quality measurements were carried out during the reporting period under USIIP/T5, since all construction works under REG-03a and ZUG-02 have already been completed, and construction works on REG-03b (MES-03) have not been started.
- 31.** Noise and air pollution standards defined by IFC/WHO 1999, are presented in the Table 3 and 4 below.

Table 3: Noise Level Guidelines

Noise	dBA		dBA	
	National Regulations		WHO	
Receptor	Daytime 07:00 - 22:00	Nighttime 22:00 - 07:00	Daytime 07:00- 22:00	Nighttime 22:00- 07:00
Residential; institutional; educational	55	45	55	45
Industrial; commercial	70	70	70	70

- 32.** Air pollution standards by IFC/WHO 1999, are presented in the Table 4 below.

Table 4: Air pollution Guidelines

Contaminants	IFC/WHO Guideline Value (Limit mg/m ³)
1	2
Inorganic dust	(*IFC does not have a standard for "inorganic dust". Instead IFC applies standards for PM2.5 and PM10). PM10 – 0,02/1 Year 0,05/24 Hour PM2,5-0,01/1 Year 0,025/24 Hour
Carbonic monoxide	n/a
Nitrogen dioxide (NO ₂)	0,2/ 1 Hour 0,04/1 Year
Aldehyde	n/a

- 33.** Environmental quality measurements were not conducted during this reporting period, as all construction activities under USIIP/T5 have been completed. As a result, no data is included in this SAEMR.

4.2 Trends

N/A

4.3 Summary of Monitoring outcomes

N/A

4.4 Material resources Utilization

4.4.1 Current Period

N/A

4.4.2 Cumulative Resources Utilization

N/A

4.5 Waste Management

4.5.1 Current Period

N/A

4.5.2 Cumulative Waste Generation

N/A

4.6 Health and Safety

4.6.1 Community Health and Safety

N/A

4.6.2 Worker Safety and Health

N/A

4.7 Training

N/A

V. FUNCTIONING OF THE SEMP

5.1 SEMP Review

34. SEMP for Zugdidi WWTP under Reg-03/a sub-project was prepared on 13 March 2018 and further updated in January 2020 due to the changes in project design defined under the Variation Order #1 including construction of the 105m long Bypass.
35. SEMP for ZUG-02 sub-project was prepared in April 2018 and further updated in January 2020 due to the changes to the project design defined under the Variation Order #5: construction of two new sewage pumping stations, construction steel bridge structure across the river Chkhoushia for 200 mm diameter steel casing pipe and construction of 500 mm pipe including steel casing for the western collector river crossing and reinstatement asphalt works, demolition and removal of existing manholes, connection of new pipelines to existing sewer manholes and replacing non-functional manhole covers on old lines.
36. All SSEMPs under USIIP/T5 were prepared by Contractor, endorsed by SC, approved by UWSCG and reviewed/commented by the RETA Regional Environmental Consultant of ADB under RETA 8663.

VI. GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

6.1 Good Practice

N/A

6.2 Opportunities for Improvement

N/A

VII. SUMMARY AND RECOMMENDATIONS

7.1 Summary

37. No construction activities took place under the USIIP/T5 sub-projects during the reported period, as all construction work for these sub-projects has already been completed.

7.2 Recommendations

38. The final updated version of the Post-Construction Environmental Audit Report, for the REG-03a sub-project, will be completed by the end of June 2025 and included in the next SAEMR for January-June 2025.

ANNEXES

ANNEX A: POST CONSTRUCTION ENVIRONMENTAL AUDIT REPORT, REG-03a

ADB Project No: 43405-027

The contract No: UWSCG-USIIP-ICB-REG-03a

Financed by: The Asian Development Bank

Urban Services Improvement Investment Program Tranche 5 Project: Construction of Waste Water Treatment Plant in Zugdidi (REG-03a)



Post - Construction Environmental Audit Report

First Draft Prepared in November 2023
Updated in June 2024 and December 2024
Tbilisi, Georgia

ABBREVIATIONS

ADB	Asian Development Bank
CAP	Compensation Action Plan
EA	Executing Agency
EHS	Environmental Health & Safety
EIA	Environmental Impact Assessment
EIP	Environmental Impact Permit
EMP/ SSEMP	Environmental Management Plan/ Site-Specific Environmental Management Plan
EMS	Environmental monitoring System
ES	Environmental Specialist
GoG	Government of Georgia
IA	Implementing Agency
IEE	Initial Environmental Examination
MoEPA	Ministry of Environment Protection and Agriculture of Georgia
MoRDI	Ministry of Regional Development & Infrastructure
SDP	Sector Development Program
UWSCG	United Water Supply Company of Georgia
WS	Water Supply
WSS	Water Supply and Sanitation Service
WWTP	Waste Water Treatment Plant

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I. Introduction

1. This report represents the Post Construction Environmental Audit Report for Urban Services Improvement Investment Program (USIIP), Tranche 5 - Construction of Waste Water Treatment Plant in Zugdidi (ZUG-03a). The initial draft of the document was prepared in November 2023 and further updated in June 2024 and December 2024 to reflect the corrective measures taken by UWSCG and SC/Posch to address the non-compliances identified in this PCEAR.
2. This Post Construction Audit Report is being prepared to comply with the 2009 ADB's SPS and Georgian legislation, including safeguards requirement and aims to identify past and present concerns from the production and business activities of Project Company that related to impacts on environment. The specific objectives of the audit can be summarized as follows:
 - Determine and verify whether all environmental requirements, criteria and constraints, prescribed in IEE and SSEMP have been adhered to during the construction phase.
 - Determine and verify whether the mitigation actions and rehabilitation requirements contained in the SSEMP have been appropriate and successful to prevent or control environmental pollution and/or damage.
 - Ensure that an appropriate environmental monitoring and control program exists to follow up on mitigation and rehabilitation works completed during the construction phase.
 - To identify any shortcomings in the SSEMP and EMS system implemented during the construction phase and to recommend alterations to the EMS applicable to the operational phase.

II. PROJECT DESCRIPTION

3. 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.
4. The Investment Program 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 rehabilitate existing infrastructure and/or create new and expanded infrastructure to meet the present and future demand. Water supply improvements include source augmentation and head works, pumping systems, treatment facilities, transmission and distribution network; and, sewerage improvement works will include sewer network, pumping stations, main collectors and waste water treatment plants.

2.1 Category of Project

5. Based on the existing ADB Environmental Safeguards Policy (2009), this Project falls under ADB's project Category B. According to ADB SPS 2009 proposed project can be classified as Category B due to the following reasons:
 - adverse environmental impacts are less adverse than those of category A projects;
 - these impacts are site-specific, few if any of them are irreversible, and
 - in most cases mitigation measures can be designed more readily than for category A projects.
6. An initial environmental examination is required and Prepared for category B projects. A category is assigned to a project by its most sensitive component, therefore, all of the outputs and activities to be undertaken under the Project fall under Category B as well.
7. In accordance with the requirements of the national legislation, an EIA has been prepared for the Zugdidi WWTP project and an Environmental Decision was issued by the MoEPA for the Construction of Zugdidi WWTP.

2.2 Description of the ZUG-03a Sub-project

8. The Construction of Wastewater Treatment Plant in Zugdidi (REG-03a) sub-project comprised of the construction of new Wastewater Treatment Plant in Zugdidi with the capacity of 22,000 m³/day.

9. The contract No UWSCG-USIIP-ICB-REG-03a was signed on February 1, 2018 with "JV "Pfeiffer - EMIT" comprised by "Ludwig Pfeifer Hoch – and Tiefbau GmbH7Co. KG (Germany)" and "EMIT (Group – Ercole Marelli Impianti Tecnologici S.r.l. (Italy)", project completion date was September 2022.

2.3 Main Stakeholders of the Project

10. The main institutions that are involved in implementation of the EMP are: executing agency (EA) - United Water Supply Company of Georgia (UWSCG), Supervision Consultant (SC) - Posch&Partners Consulting Engineers, the Construction Contractor - Ludwig Pfeiffer Hoch-und Tiefbau GmbH & Co.KG and to a lesser extent the Ministry of Environmental Protection and Agriculture (MoEPA). Investment Program Management Office (IPMO) established within UWSCG is responsible for the day-to-day management of the project including implementation of the EMP. The IPMO has an Environmental Specialist – Ms. Ketevan (Kate) Chomakhidze who is responsible for management of the environmental aspects of USIIP, Tranches 1-6 of USIIP.
11. The SC included a full time Environmental Specialist Ms. Eliso Barnovi to assist the IPMO supervises and monitor implementation of the EMP during construction. Department of Permits, Environmental Protection and Social Affairs of UWSCG work together with IPMO on addressing the Environmental Safeguard issues of USIIP.
12. Environmental issues arising from the construction activities were immediately brought to the attention of the construction supervision team to coordinate efforts in order to immediately mitigate impacts, protect the environment, and safeguard the health and welfare of the local communities.
13. Main organizations involved in the REG-03a sub-project and related to environmental safeguards are presented in the Table 1 below:

Table 1. List of main organization under the Project, USIIP/T5

Type of project participant	Name of Agency/Company	Environmental Staff	Name and contact details
Lender	Asian Development Bank	Country Environmental Focal	Ninette R. Pajarillaga E-mail: npajarillaga@adb.org
		Associate Safeguards Officer Georgia Resident Mission Asian Development Bank	Nino Nadashvili Tel: +995 595 070442 E-mail: nnadashvili@adb.org
		ADB RETA, Environmental Consultant	George Kobaladze Tel: +995 599 689834 E-mail: gkbaladze.consultant@adb.org
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Type of project participant	Name of Agency/Company	Environmental Staff	Name and contact details
Borrower	UWSCG	UWSCG, Department of Environmental Protection and Permits, Head	Ms. Maka Goderdzishvili Tel: +995 599 229925 E-mail: m.goderdzishvili@water.gov.ge
		UWSCG/IPMO Donor Funded Project Management Department, Acting Head	Ms. Irine Chikhladze Tel: +995 598 179898 E-mail: ana.onashvili@water.gov.ge
Borrower	UWSCG/USIIP/T5	Environmental Specialist	Ms. Ketevan Chomakhidze Tel: +995 577 380309 E-mail: Chomakhidzek@yahoo.com
Supervision Consultant	Posch&Partners Consulting Engineers	Environmental Specialist:	Ms. Eliso Barnovi Tel: +995 551 300112 E-mail: tikozhizhiashvili@yahoo.com
Contractor REG-03a	JV "Pfeiffer - EMIT" comprised by "Ludwig Pfeiffer Hoch – and Tiefbau GmbH Co. KG (Germany)" and "EMIT Group – Ercole Marelli Impianti Tecnologici S.r.l. (Italy)	Environmental H&S Specialist	Mr. Nikoloz Neparidze Tel: +995 599 346821 E-mail: nikoloz.neparidze@ludwigpfeiffer.com
		H&S Specialist	Mr. Irakli Abuladze Tel: +995 568 012858 E-mail: irakli.abuladze.1974@gmail.com

III. LOCATION OF PROJECT

14. This project is located in Zugdidi, in the western part of the country in the Georgian historical province of Samegrelo, approximately 346 km west of Tbilisi, the capital of Georgia and 30 km east of Black Sea coast. The Zugdidi is a capital of Samegrelo-Zemo Svaneti region, the fifth largest city of Georgia and is located on the left bank of the Chkhoushi River. The total population of the town was 69,744 as per 2010 census. The total area of Zugdidi Municipality is 16.85 km² at approximate altitude of the 80 – 120 meters above sea level.

MAP 1: Location of Zugdidi



IV. SUMMARY OF PREVIOUS ENVIRONMENTAL MONITORINGS AND AUDITS

4.1 General Description of Environmental Safeguard Activities

15. A Total 20 site visits were conducted and 43 non-compliances identified during the Individual and joint on-site monitoring activities carried out by Environmental Monitoring Specialist of SC Ms. Eliso Barnovi and Environmental Specialist of USIIP Ms. Kate Chomakhidze on a regular basis, during the project implementation period In February 2018 - September 2021. Also unscheduled monitoring visits were carried out, on-site verbal instructions have been given to the contractor and its environmental team and non-conformance notes has been issued to the contractor as needed. Mitigation measures to reduce major environmental impacts have been instructed to contractors during the monitoring visits.
16. The monitoring activities included:
 - The monitoring of mobilization activities under Reg-03/a project sites to the overall project EMP/SSEMP requirements;
 - The monitoring of compliance of construction activities under Reg-03/a project sites to the IEE/EMP requirements;
17. Environmental Monitoring Specialist hired under the Reg-03/a projects Mr.Nikoloz Meparidze conducted the day-to-day monitoring of the construction sites, filled the weekly checklist forms developed the monthly monitoring reports and submitted to SC/Posch.
18. Environmental Monitoring Specialist, Ms.Eliso Barnovi developed quarterly monitoring reports for UWSCG/USIIP/T5 based on the monthly reports submitted by Contractor, and on regular site inspections.
19. ES of USIIP performed monitoring of contractor's performance with the approved EMPs and SSEMPs, environmental standards and other environmental commitments of the contractor. ES developed Semi-annual environmental monitoring reports and submitted to ADB based on the quarterly reports prepared by SC and monitoring results.
20. The construction activities affecting the environment during the reporting period are as follows:
 - Excavation works
 - Removal of Surplus Soil
 - Workers PPE
 - Working on height
 - Reinstatement Activities
21. In February 2018 - September 2021, in the construction phase of Zugdidi WWTP, the environmental monitoring was conducted by several organizations, namely - ADB, Supervision Consultant (CSC), Construction Contractor (CC) and UWSCG/USIIP.

22. A total of 20 Site visits have been carried out during the construction period of REG-03a sub-project and up to 43 non-compliances were identified during these site visits in 2018-2021.

The identified non-compliances during the site visits were as follows:

- Poor housekeeping
- Power generator without secondary containment
- Construction materials improper storage
- Construction waste management and disposal
- Proper protection of construction site with lockable gate
- Environmental, Health and Safety issues on sites, workers PPE and working on the height
- Proper fuel/oil spill response items (sand, sawdust, special containers) should be available at the site
- All construction materials should be properly segregated and stored adequately
- Waste should be collected regularly at the site and placed only at the proper waste container
- Site internally should be arranged properly and cleaned regularly
- Safety signs/tapes around of all open trenches should be installed to avoid accident of workers and population
- Hazardous waste should be disposed in its intended bin and carried out by a permit company. Submit proof of removal process and photo documentation.

V. AUDIT RESULTS

23. The Post Construction Environmental Audit of the construction of Zugdidi Waste Water Treatment Plant (REG-03a) sub-project was conducted by the UWSCG/SDP on December 2023. The non-compliances found during the above mentioned audit is presented below.
24. Currently sludge dewatering equipment is not fully operational and from the sludge line only the mechanical pre-thickening is operating. For the safe operation of the digester the boiler and the gas line is missing, therefore without these it was not permitted to operate the digester with pre-thickened sludge.
25. The contractor - "Pfeiffer - EMIT" left the site end of 2021 due to bankruptcy in December 2021, there were not any construction activities and physical progress and therefore did not complete most parts of the sludge treatment stages. The contractor only completed the pre-thickening stage, all other stages for sludge treatment remain uncompleted and are not commissioned.
26. With the present status, it is impossible to extract sludge from the system, only liquid can be extracted. As there is no contractor available any more emergency measures has to be implemented by UWSCG through the Consulting service under the contract with the supervision consultant - Posch&Partners Consulting Engineers.

Status on screens on the mechanical treatment stage:

27. Since August 2022 one out of two fine screens is not operative anymore. It is mechanically damaged and there is no contractor to repair or exchange them.
- 28.
29. However, the screens have been investigated and it is clear which parts would be needed that so that UWSCG can repair them. It is proposed to directly order these part from the supplier until the end of December 2023.
30. In the absence of the digester and the sludge centrifuges a temporary sludge removal is established by UWSCG. Sludge is removed as follows: Primary sludge is thickened in the thickener and overflows from the thickener into the drainage pump sump, as no Primary Sludge (PS) can be withdrawn from the thickener. From hat drainage sump the scum layer is removed (by excavator!) to the emergency sludge storage hall for drying.



Drainage pump sump with scum layer after excavation end September 2023

- Sludge from drain sump is stored in the sludge storage area (about 100m³), and some sludge was buried in the trench next to the drainage sump (about 50m³):



Sludge storage area



Sludge dump next to storage hall

- Excess sludge (secondary sludge) is pumped from the Return Sludge into the sludge storage sump. From time to time a small volume is withdrawn via a hose connected to the socket for the manometer and pumped to the emergency sludge storage hall where it is dried and disposed at the dump site as above.
- Another portion of excess sludge (mainly floating sludge and scum) is manually removed from the open outlet/collection channel of the aeration tanks.



Dried sludge at emergency storage hall

32. In order to address the above-mentioned non-compliances, including the completion of the centrifuge, the gas line, the heating system for digester and the gas holder, as well as ensuring smooth operation of the fine screen, UWSCG and SC/Posch have decided to go for local contract of all works and services, which will take max. 4-6 months. To achieve this goal, at the end of January 2024, the Supervision Consultant/ Posch prepared and submitted to the UWSCG tender documents for the emergency procurement of all the above services and works, which will ensure that all defects are eliminated, including sludge dewatering and that all problems identified during the preliminary commissioning of the WWTP will be finally improved (for more details please see Annex B – Post-construction Audit Report for REG-03a sub-project).

VI. CONCLUSIONS AND RECOMMENDATIONS

33. This Post Construction Environmental audit has been carried out in order to eradicate a number of mitigation measures and possible problems, therefore proper and timely implementation of correction actions will significantly reduce the expected negative future impact.
34. It should be mentioned that most of the non-compliances identified during the construction process is eliminated by contractor. Zugdidi WWTP site is adequately fenced and it was impossible for strangers as well as domestic animals to enter the sites. The whole territory is lightened 24 hours a day and locked with lockage gate. Information and warning signs are provided on the gate.
35. It should be noted that most of the inconsistencies identified during the construction process were eliminated by the contractor. The WWTP site in Zugdidi is properly fenced, so access to the territory by unauthorized persons and domestic animals is impossible. The entire area is lightened 24 during the night time and is locked with gates. Information and warning signs also exist on site.
36. As it has been described above, most of the predicted impacts are associated with improper management of sludge. The centrifuges, the gas line, the heating system for digester and the gas holder are not completed. Consequently, excess sludge, cannot be de-watered, which makes excess sludge extraction complicated. As a result of above, the system is causing operation problems to WWTP.
37. In order to improve the situation and ensure smooth commissioning of the system, UWSCG and SC/Posch have decided to go for local contract of all works and services. To achieve this goal, at the end of January 2024, the Supervision Consultant/ Posch prepared and submitted to the UWSCG tender documents for the emergency procurement of all the above services and works. More details information is provided in the Table 2 below, which gives the summary information about the non-compliances observed during the environmental audit and due corrective actions and probable terms of their realization.

Table 2: Summary information about the non-compliances identified during the post-construction environmental audit

#	Issues	Corrective actions	Time for Improvement and Responsibilities	Status of corrective actions
1	The centrifuges, the gas line, the heating system for digester and the gas holder are not completed. Consequently,	A tender documentation was prepared and submitted to UWSCG by SC/Posch	June 2024 UWSCG	Completed. A tender documentation was prepared and submitted to UWSCG by SC/Posch
Page 14 of 21	excess sludge, cannot be de-watered, which makes excess sludge extraction impossible.	The new tender can be launched soon		end of December 2024, the new tender will be launched in January 2025

#	Issues	Corrective actions	Time for Improvement and Responsibilities	Status of corrective actions
2	The huge sludge quantities in the system can no longer be kept and will lead to exceeding the effluent standards and further damages to the plant.	For procuring as Emergency Measures a bypass of the sludge line and commissioning of the centrifuges the tender documentation is prepared by SC/Posch	December 2024 UWSCG	Completed, A tender documentation was prepared and submitted to UWSCG by SC/Posch, end of December 2024
3	Since one year the fine screen is not operative anymore. This leads to problems in all downstream treatment stages of the plant. Urgent action is needed	Procuring as Emergency Measures new screens	December 2024 UWSCG	Completed, A tender documentation was prepared and the tender was announced by UWSCG, end of December 2024

ANNEXSES

ANNEX A: NON-COMPLIANCE NOTICES IDENTIFIED DURING THE CONSTRUCTION PHASE OF ZUGDIDI WWTP, January 2019- January 2021

January-June 2019				
Number of site visits	Number of Non-compliances	Issues	Status	Comments
8 site visits	20 non-compliances	1. Poor housekeeping	Completed	
		2. Power generator without secondary containment	Completed	
		3. Construction materials improper storage	Completed	
		4. Construction waste should be timely removed from the construction site and disposed properly,	Completed	
		5. The main problem on site is that there are too many actors on the ground who are not coordinated, and they claim each other about the disorder on the construction site.	Completed	
		6. Proper construction site gate should be arranged	Completed	
		7. Construction waste should be timely removed from the construction site and disposed properly	Completed	
		8. Environmental, Health and Safety officer should be regularly available at the site!	Completed	
		9. Proper fuel/oil spill response items (sand, sawdust, special containers) should be available at the site	Completed	
		10. Containers with fuel/lubricant should be managed properly (stored at the proper organized place with concrete floor and roofing) to avoid leakage and ground contamination	Completed	
		11. All construction materials should be properly segregated	Completed	

		and stored adequately		
		12. Waste should be collected regularly at the site and placed only at the proper waste container	Completed Completed	
		13. Site internally should be arranged properly and cleaned regularly	Completed	
		14. Construction waste should be timely removed from the construction site and disposed properly	Completed	
		15. Containers with fuel/lubricant should be managed properly (stored at the proper organized place with concrete floor and roofing) to avoid leakage and ground contamination	Completed	
		16. All construction materials should be properly segregated and stored adequately	Completed	
		17. Waste should be collected regularly at the site and placed only at the proper waste container	Completed	
		18. All construction materials should be properly segregated and stored adequately	Completed	
		19. Waste should be collected regularly at the site and placed only at the proper waste container	Completed	
		20. Workers always should use complete PPE	Completed	
July-December 2019				
Number of site visits	Number of Non-compliances	Issues	Status	Comments
10 site visit	15 non-compliances	1. Wash out pit is existing from which water directly discharged into the river. ADB Mission requested CC to make water tests to avoid pollution of the river.	Completed	
		2. Not completed, since contractor stopped the direct discharge of water from the wash	Completed	

out pit into the river and therefore no further pollution of the river occurred		
3. The generator unit on the territory of camp site running on diesel is not placed on a secondary tank.	Completed	
4. Cattle were observed within the construction territory due to damaging the fencing at few places around the construction site.	Completed	
5. CC to improve track record system and add Accident Record Log (with recorded near misses) and grievance log book	Completed	
6. Site internally should be arranged properly and cleaned regularly	Completed	
7. Waste should be timely removed from the construction site and disposed properly	Completed	
Surplus waste soil should be removed and disposed in a proper place	Completed	
8. Proper waste containers should be installed and labeled	Completed	
9. Waste should be timely removed from the construction site and disposed properly	Completed	
10. Site internally should be arranged properly and cleaned regularly	Completed	
11. Safety signs/tapes around of all open trenches should be installed to avoid accident of workers and population	Completed	
12. Surplus waste soil should be removed and disposed in a proper place	Completed	
13. Proper waste containers should be installed and labeled	Completed	

		14. Waste should be timely removed from the construction site and disposed properly	Completed	
		15. Site internally should be arranged properly and cleaned regularly	Completed	
January-June 2020				
Number of site visits	Number of Non-compliances	Issues	Status	Comments
2 site visits	8 non-compliances	1. Bins for solid household waste are disposed on site. Where necessary, bins for such waste shall be compactly disposed on several places. Place a sticker on it. Submit photo documentation.	Completed	
		2. Place the bin for hazardous waste on a roofed site and make appropriate marking. Submit photo documentation.	Completed	
		3. Hazardous and household waste at the entrance of the facility is mixed and disposed on a unsurfaced car park area.	Completed	
		4. Hazardous waste should be disposed in its intended bin and carried out by a permit company. Submit proof of removal process and photo documentation.	Completed	
		4. The parking area is contaminated with oils and other lubricants. Also, in some places the soil is contaminated with oils.	Completed	
		6. According to the legislation, remediation of contaminated soil and removal and storage of contaminated sand should be done separately.	Completed	
		7. Removing process should be done by a permit company. Submit a certificate of removal, photo documentation for remediation and cleaned areas.	Completed	
		8. Waste should be timely removed from the construction site and disposed properly	Completed	

ANNEX 3. ZUG-03a, POST-CONSTRUCTION ENVIRONMENTAL AUDIT CHECKLIST

Required mitigation measure of environmental impact	Measures implemented				Comment
	yes	partially	no	N/A	
Site territory fenced fully	x				The whole project area is adequately fenced.
Provide adequate lighting of the site avoid accidents	x				Adequate lighting of site is provided to avoid accidents
Information Warning signs	x				WWTP site is equipped with proper information signs
Prevent access of public to the reservoir site	x				WWTP site is fenced from all sides and equipped with lockable gate
Cattle within the construction territory due to damaging the fencing at few places around the construction site.					The whole project area is adequately fenced around the WWTP site and there is no damage on fence
Top soil placed at original location	x				The rehabilitation works were carried out in all project zones, where the removed topsoil in the project zone was used.
Vegetation cover reinstated	x				The grass has been restored on the territory.
Site internally should be arranged properly and cleaned regularly	x				WWTP site is cleaned and organized
Construction waste and surplus/waste soil removed completely and disposed properly	x				All the construction equipment and construction materials were removed from the project zones.
Hazardous waste removed and disposed properly.	x				No facts of uncontrolled disposal of hazardous waste were fixed in the project area.
Fuels and lubricants spills eliminated	x				No traces of leakage were identified in the project area.
Contractor equipment and machinery removed	x				All the construction equipment was removed from the project zones.
All temporary facilities removed and cleaned up	x				The temporary auxiliary buildings are fully removed from the site.

Required mitigation measure of environmental impact	Measures implemented				Comment
	yes	partially	no	N/A	
Post-Construction territory reinstated to pre-construction or better conditions	x				The project zone is reinstated in line with the requirements.