Environmental Monitoring Report

Semi Annual Report

For the Period Covered July to December 2022

January 2023

Tajikistan: Dushanbe Water Supply and Sanitation Project

Prepared by the Project Implementation group for the State Unitary Enterprise Dushanbevodokanal and for the Asian Development Bank

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Semiannual Environmental Monitoring Report

Project Number: 50347-002 G0612

Reporting period: July-December 2022

Republic of Tajikistan: Dushanbe Water Supply and Sanitation Project

(Financed by Asian Development Bank)

Prepared by the project implementation group with support of SMEC in association with LLC PANASIA LTD for the State Unitary Enterprise “Dushanbevodokanal” and the Asian Development Bank

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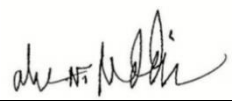
January 2023

Reviewed by	Position	Date	Sign
Abu Nahid Munir Uddin	International Environmental Consultant	17/01/2023	

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Abbreviations

ADB	-	Asian Development Bank
BoQ	-	Bill of Quantity
CW		Civil Works
DVK	-	State unitary enterprise (SUE) ” Dushanbevodokanal”
DSC	-	Design and Supervision Consultant
DMA		district metering area
EA	-	Executive Agency
EMP	-	Environmental Management Plan
EMR	-	Environmental Monitoring Report
EBDC	-	Executive Body of Dushanbe city
GRM		Grievance Redress mechanism
HG	-	Head of Group
IA	-	Implementing Agency
IEE	-	Initial Environmental Assessment
NRW		Non- revenue water
PIG	-	Project Implementation Group
PMDSC	-	Project Management, Design and Supervision Consultant
SAEMR		Semi-annual Environmental Monitoring Report
SEADC	-	State Executive Authority of Dushanbe city
SSEMP	-	Site-Specific Environmental Management Plan
WSS	-	Water Supply and Sanitation

1 INTRODUCTION

1.1 Preamble

1 This report represents the Semi-Annual Environmental Monitoring Review (SAEMR) for Dushanbe water supply and sanitation project.

2 This report is the 6th EMR for the project.

1.2 Headline Information

3 This is the sixth Semi-annual Environmental Monitoring Report prepared for the Dushanbe Water Supply and Sanitation Project. It covers reporting period from July to December 2022 and describes the status of project implementation, activities carried out by the Consultant's team, Project Implementation Group and Contractor with regard to environmental safeguard issues.

4 Contractor for CW-03: Rehabilitation of the south sewage collector had been selected Ludwig Pfeiffer Hoch- und Tiefbau GmbH& Co.KG. The civil works on package CW-03 commenced on 23 February 2021. However, due to certain financial issues within CW-03 Contractor (Ludwig Pfeiffer), this Contractor has suspended works at all sites in December 2021. In order to complete the urgent and unfinished works abandoned by the Contractor (Ludwig Pfeiffer) on package CW-03, upon analyzing the quotations, it was decided to conclude contract CW03-2 with LLC Kangurt-2 for the urgent unfinished works and provide conservation of construction. Finally, on November 14, 2022 contract CW03/4 was made with Joint Venture of JSC Tojikgidroelecrtomontaj (TGEM) and Azkompozit LLC for finishing the works for rehabilitation of the South Sewage Collector Sections from K57 to K102.

5 The contract for CW-01/1 "(CW-01) Rehabilitation of Water Supply System in Shomansur district Phase 1. Lot 1: Reconstruction of the water intake structure KAF-1"JSC was awarded to "Tojikgidroelectromontaj" (TGEM). The civil works on package CW-01/1 commenced on April 2022.

6 The contract for CW-01/2 "(CW-01) Rehabilitation of Water Supply System in Shohmansur district Phase 1. Lot 2: Construction and rehabilitation of portions of main water pipeline." was awarded to Joint Venture between JSC "Tojikgidroelectromontaj" (Tajikistan) and Azkompozit LLC (Azerbaijan),. The civil works on package CW-01/2 commenced on March 2022.

7 The contract for CW-02 "Reconstruction of PS Khovaron, construction of Zebunisso reservoir, & replacement of water distribution network in DMAs A14 & AB15" was awarded to OJSC "TajikSGEM",. The civil works on package CW-02 commenced on February 2022.

8 The contract for CW-04/1 "(CW-04) Replacement of water distribution network & installation of measuring devices in DMAs. Lot 1: Replacement of water distribution networks in DMAs A1, A2, A3, & A4 was awarded to "Stroy-Center" LLC. The civil works on package CW-04/1 commenced on October 2022.

9 The contract for CW-04/2 "(CW-04) Replacement of water distribution network & installation of measuring devices in DMAs Lot 2: Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1 was awarded to Joint Venture between "Blue Star Group" LLC (Uzbekistan) and LLC "Joint Venture Ittihod Inshoot and Zumrut" (Tajikistan). The civil works on package CW-04/2 commenced on October 2022.

10 The civil works on packages CW-03/4 did not start within reporting period.

2 PROJECT DESCRIPTION AND CURRENT ACTIVITIES

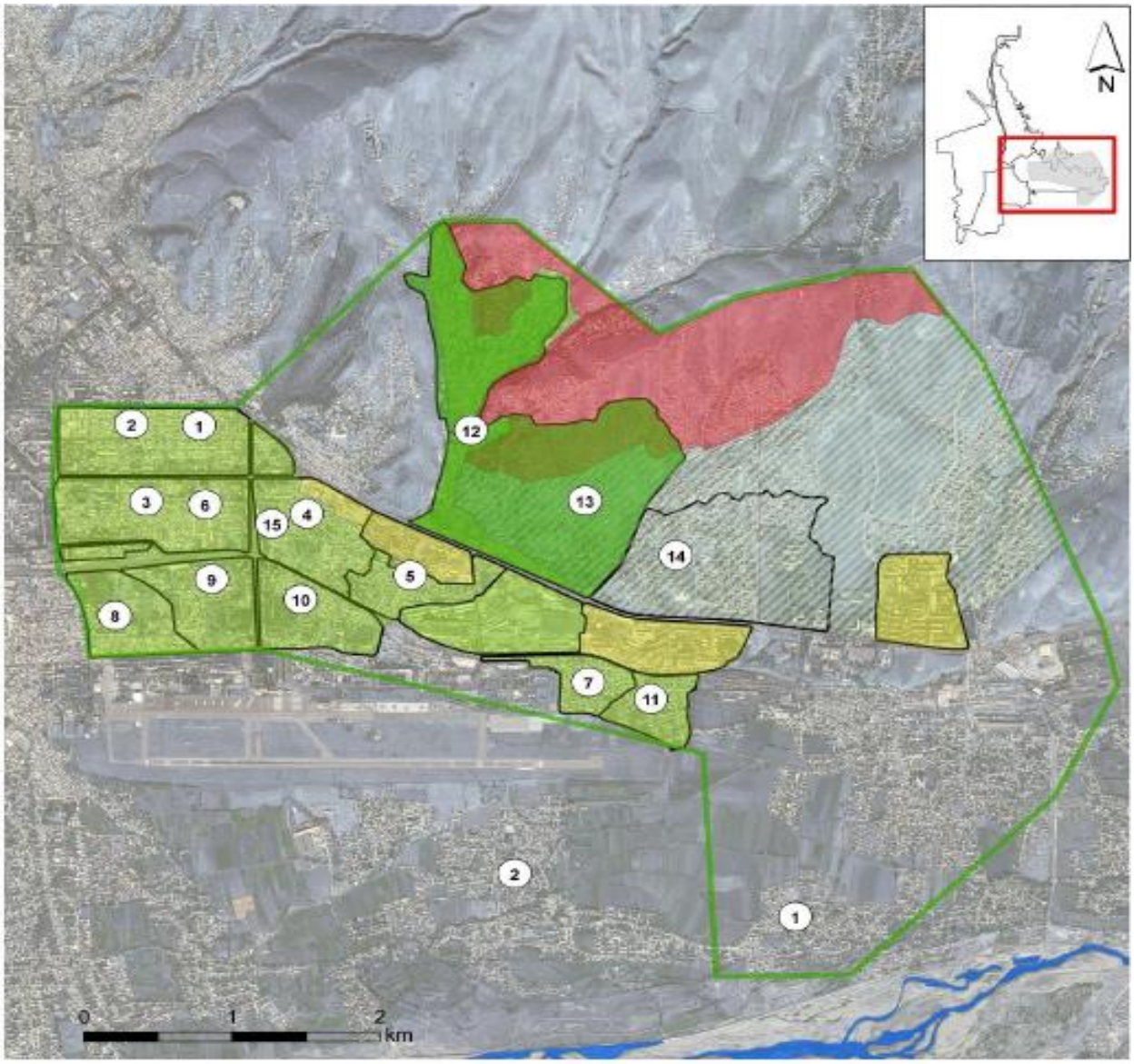
2.1 Project Description

11 The water supply and sanitation systems in Dushanbe have deteriorated over the years due to a combination of age, lack of continued capital investments and lack of proper operation and maintenance. The water supply system is characterized by intermittent operation, high non-revenue water (NRW), low water pressures and low energy efficiency. The expanding urban areas, particularly in the eastern part of the city, are not connected to the water and sewerage system. The lack of public understanding to conserve water as a natural resource combined with low tariffs has led to uncontrolled consumption and wastage of water.

Figure 1. Location of the project

12 The sanitation infrastructure provides only limited coverage within the city and the peri-urban areas. The existing network is in a generally poor condition resulting in potential groundwater pollution and overflows to water bodies and to land. In particular, the south collector sewer is dysfunctional being partly blocked due to poor design and construction leading to critical adverse sanitary and environmental conditions in large areas of the south-eastern part of Dushanbe.

13 The Asian Development Bank (ADB) allocated Grant No. 0612-TAJ in the amount of US $ 41.22 million in accordance with the Financing Agreement for the Dushanbe Water Supply and Sanitation Project (DWSSP). This project is the first ADB-funded project for the SUE "Dushanbevodokanal" (DVK). The scope of work of the allocated grant includes the rehabilitation of water supply, sewerage facilities and the strengthening of the institutional capacity of the SUE "Dushanbevodokanal" to improve its services in the Shohmansur district and the districts located in the southeastern part of the city. Figures below show the detailed location of project sites and area of interventions.



Areas of intervention

- Priority area boundary
- Areas with measures for WS and sewerage networks
- Category A: Old network high NRW areas
- Category B: Areas under scheduling partially rehabilitated
- Category C: Rehabilitation by WB
- Category D: Extension areas, low population density

Shohmansur district of Dushanbe city (mahallas)			
1	Chehov	10	Bedil
2	N Muhammad	11	Chanoro-2
3	Shohmansur-1	12	Karotegin
4	Shohmansur-2	13	Zebunniso
5	Shohmansur-3	14	Hovaron
6	Vosifi	15	Shodi
7	Chanoro-1	**Rudaki district**	
8	Afzali	1	Jamoat Guliston
9	Dilshodi Barno	2	Jamoat Kushteppa (Rossiya)

Figure 2. Project area

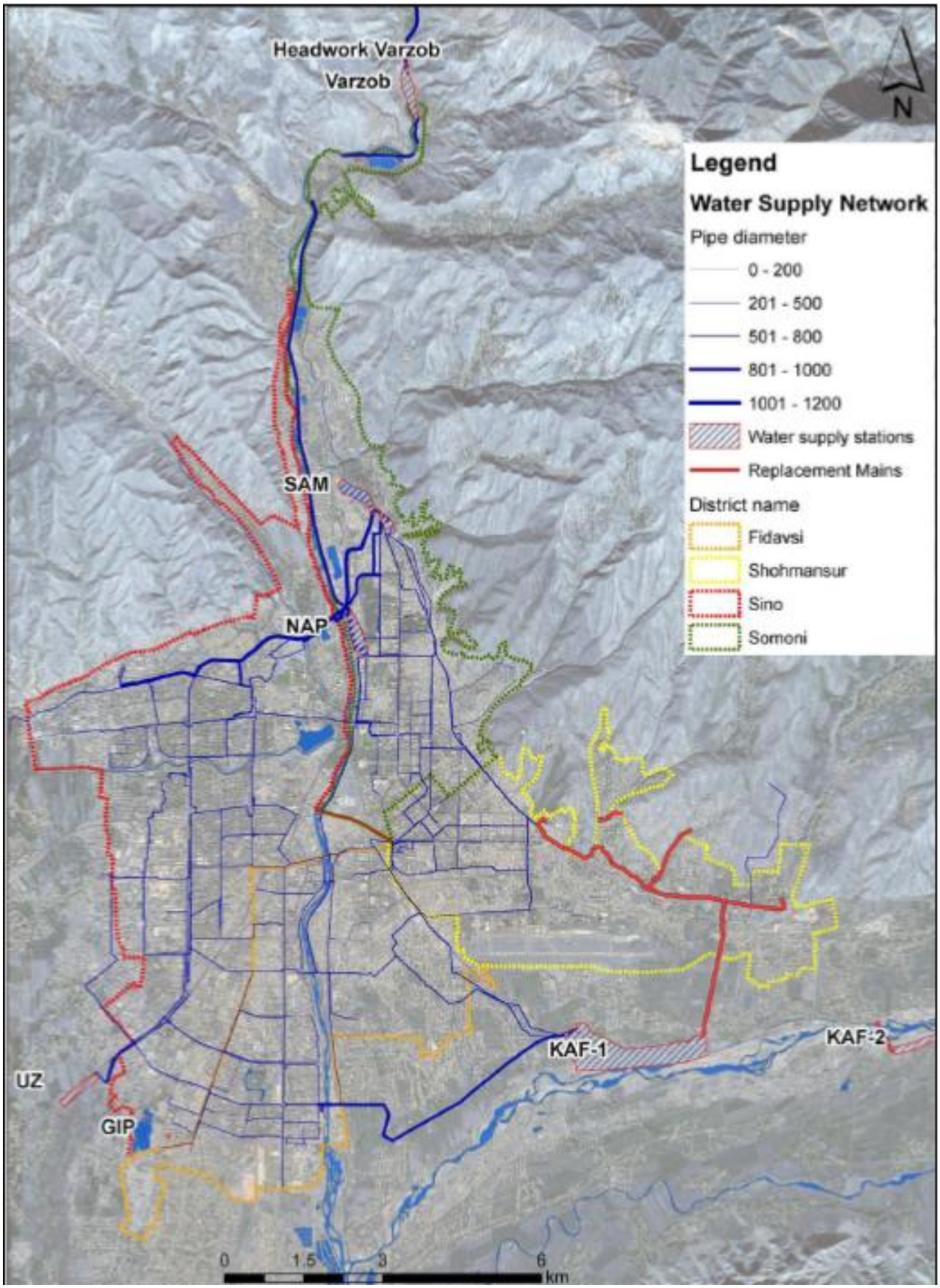


Figure 3. Water supply network in Dushanbe and project district Shohmansur

14 There are following outputs of the project:

Output 1: Climate-resilient water supply and sanitation infrastructure rehabilitated and expanded. This output will be delivered through

(i) rehabilitating 17 wells, 22 pumps and second stage pump stations, water metering, chlorination, and other facilities at Kafernigan I, including the installation of a SCADA system;

(ii) reducing NRW through the rehabilitation of 12 km of transmission main, the establishment of 18 district metering areas (DMAs): with the installation of 42 bulk meters and 5,220 smart meters, and the improvement of 57.5 km of distributional network in six DMAs;

(iii) increasing the reservoir storage capacity to 4,500 m^3 supplying Shohmansur District, supply approximately an additional 2,000 households with drinking water; and

(iv) rehabilitating the South sewage collector of 9.412 km.

Output 2: Sustainable business model and institutional capacity developed. This output will be delivered through prioritized institutional strengthening actions:

(i) a business model for DVK developed that covers technical, operational, and institutional organizational restructuring; and human resources management;

(ii) an accountability and incentive mechanism established, with a performance benchmarking matrix;

(iii) a smart management system enhanced for operational efficiency; asset management; and seamless integration of the customer database, billing, collection, accounting, and reporting;

(iv) an NRW management system operationalized, with the installation of SCADA for new network management practices for the 18 DMAs equipped with flow meters, smart meters for household service connections, active leak detection, and calibration of meters;

(v) institutional, technical, and financial capacity improved; and

(vi) customer care service standards developed and behavior change communication on water conservation and smart metering conducted.

2.2 Project Contracts and Management

15 The project is funded by a grant from the Asian Development Bank (ADB). The Executing Agency is State Executive Authority of Dushanbe city (EA). The Implementing Agency is the State Unitary Enterprise “Dushanbevodokanal” (DVK) with the Project Implementation group (PIG) for DWSSP.

16 The project is consisting of 4 Civil Works (CW) packages:

- Package 1 (CW-01) Rehabilitation of Water Supply System in Shomansur district Phase 1. Lot 1: LOT CW-01/1: Reconstruction of the water intake structure KAF-1. Lot 2: LOT CW-01/2: Construction and rehabilitation of portions of main water pipeline.
- Package 2 (CW-02) for “Reconstruction of PS Khovaron, construction of Zebunisso reservoir, & replacement of water distribution network in DMAs A14 & AB15.“
- Package 3 (CW-03) for “Rehabilitation of the south sewage collector” and
- Package 4 (CW-04) for “Replacement of water distribution network & installation of measuring devices in DMAs.

  Lot 1: Replacement of water distribution networks in DMAs A1, A2, A3, & A4. Lot 2: Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1.”

17 Package 3 (CW-03) Contract was awarded on 8 June 2020, to a Ludwig Pfeiffer Hoch- und Tiefbau GmbH& Co.KG, Contractor for CW-03 “Rehabilitation of the South Sewage collector”. The Commencement Date was set on February 2021. However, due to certain financial issues within CW-03 Contractor (Ludwig Pfeiffer), Contract with this Contractor is under termination. The works to complete so-called “urgent and unfinished works” and conservation of site awarded to sub-contractor of Ludwig Pfeiffer Hoch- und Tiefbau GmbH& Co.KG - “Kangurt-2” LLC. Finally, Rehabilitation of the South Sewage Collector Sections from K57 to K102 awarded to Joint Venture of JSC Tojikgidroelecrtomontaj (TGEM)

and Azkompozit LLC on November 14, 2022

18 Package 1, Lot 1 (CW01/1) Contract was awarded in 05 November 2021 to a JSC “Tojikgidroelectromontaj” (TGEM), Contractor for CW-01 “(CW-01) Rehabilitation of Water Supply System in Shohmansur district Phase 1. Lot 1: Reconstruction of the water intake structure KAF-1.”. The construction works started on April 2022 and scheduled to be completed on May, 2023.

19 Package 1, Lot 2 (CW01/1) Contract was awarded in 05 November 2021 to a Joint Venture between JSC “Tojikgidroelectromontaj” and Azkompozit LLC, Contractor for CW-01 “(CW-01) Rehabilitation of Water Supply System in Shomansur district Phase 1. Lot 2: The construction works started on March 2022 and scheduled to be completed on August, 2023.

20 Package 2 (CW02) Contract was awarded (on 18 November, 2020) to OJSC “TajikSGEM”, Contractor for CW-02 “Reconstruction of PS Khovaron, construction of Zebunisso reservoir, & replacement of water distribution network in DMAs A14 & AB15”. The construction works started on February 2022 and scheduled to be completed on August, 2023.

21 Package 4, Lot 1 (CW04/1) Contract was awarded (on 09 June, 2022) to “Story-Centr” LLC, Contractor for CW-04/1 “Replacement of water distribution network & installation of measuring devices in DMAs. Lot 1: Replacement of water distribution networks in DMAs A1, A2, A3, & A4”. ”. The construction works started on October 2022 and scheduled to be completed on March, 2024.

22 Package 4, Lot 2 (CW04/1) Contract was awarded (on 09 June, 2022) to Joint Venture etween “Blue Star Group” LLC and LLC “Joint Venture Ittihod Inshoot and Zumrut”, Contractor for CW-04/2 “Replacement of water distribution network & installation of measuring devices in DMAs Lot 2: Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1”. ”. The construction works started on October 2022 and scheduled to be completed on April, 2024.

23 Summary of civil works contracts and works’ progress is summarized in Table 1. All awarded contracts included EMPs cleared by ADB and conditions of applicable national IEE clearance (listed below). The initial environmental examination report covering entire scope of the project was submitted by the PIG (Dushanbevodokanal) to the State Ecological Expertise (SEE) (Committee for environmental protection under the Government of Tajikistan) on 16.04.2019. The “environmental appraisal/approval” was obtained from SEE on 30.04.2019 (Registration No. 443/15) and shared with the Dushanbe environmental protection department. With the aim of protection and Improvement of environment proposed to comply with following conditions:

- During the mentioned civil works and use of foreseen structures, norms and requirements of legislation of the Republic of Tajikistan in protection and improvement of environment and sanitation rules, along with ecological standards should be considered ,
- During the civil works, the construction and consumption wastes, according to defined orders should be removed to official waste polygons;
- Requirements to the rules and norms of construction SniP 2.06.03-85 and SanPin 2.1.4.004-07 within the implementation of the project should be considered:
- During construction works, the implementation measures, which are foreseen within the project should be conducted in consultations with relevant environmental departments and agencies;
- The supervision should be conducted on civil works and on implementation of environmental management plan:
- Extraction of construction materials should be implemented according to legislation requirements of country and in consultation with authorized bodies:
- Permission documents should be taken with defined orders;
- The produced construction and solid household wastes should be collected in special boxes, and in accordance with defined orders and legislation requirements of the Republic of Tajikistan in the field of wastes treatment, should be placed to official waste landfills:
- Environmental fees should be timely transferred to relevant departments and sectors of Environment Protection of Dushanbe city.

Table 1: Summary of Civil Works Contracts and works' progress

Package	Scope	Contractor	Signed	Approval Date			Environmental personnel		Civil Work		(%) Progress as of	
				SSEMP	COVID-19 HSMP	ERP	Environmental officer	Health and Safety officer	Start	End	01 Jul 2022	01 Jan 2023
Package 1 (CW-01)	Rehabilitation of Water Supply System in Shomansur district Phase 1. Lot 1: LOT CW-01/1: Reconstruction of the water intake structure KAF-1.	JSC Tojikgidroelectro montaj (TGEM)	5 Nov 2021	Apr 2022	Apr 2022	Apr 2022	Bahrom Yormatov	Sharif Rafiev	Apr 2022	May 2023	3%	29%
	Rehabilitation of Water Supply System in Shomansur district Phase 1. Lot 2: LOT CW-01/2: Construction and rehabilitation of portions of main water pipeline.	Joint venture between JSC TGEM and Azkompozit LLC	5 Nov 2021	Mar 2022	Mar 2022	Mar 2022	Sharipov Ashrafkhon[1]	Sharipov Ashrafkhon	Mar 2022	Aug 2023	10%	40%
Package 2 (CW-02)	Reconstruction of PS Khovaron, construction of Zebunisso reservoir, & replacement of water distribution network in DMAs A14 & AB15.	JSC TajikSGEM	18 Nov 2021	Feb 2022	Feb 2022	Feb 2022	Hasan Sherov	Murodov N	Feb 2022	Aug 2023	25%	49%
Package 3 (CW-03)	Rehabilitation of the south sewage collector	Ludwig Pfeiffer Hoch- und Tiefbau GmbH& Co.KG	8 Jun 2020	Feb 2021	Feb 2021	Feb 2021	Ayub Yorov[2]	Ayub Yorov	Feb 2021	unknown	17%	-[3]
		Kangurt 2 LLC	24 Jan 2022 17 May 2022	May 2022	May 2022	May 2022	Ayub Yorov	Ayub Yorov	Jan 2022 May 2022	Mar 2022 (Mar 2023)	25%	87%
		Joint venture between JSC TGEM and Azkompozit LLC	14 Nov 2022	Not yet provided	Not yet provided	Not yet provided	-	-	(Jan 2023)	(1 May 2024)	0%	0%
Package 4 (CW-04)	Replacement of water distribution network & installation of measuring devices in DMAs. Lot 1: Replacement of water	LLC "Stroy-Center"	9 Jun 2022	Aug 2022	Sep 2022	Sep 2022	Ulugov F.	Abdulloev D	Oct 2022	(Mar 2024)	0%	26%

[1] He has expertise both on environment and health and safety.
[2] Same as footnote 1.
[3] Contract with Ludwig Pfeiffer Hoch- und Tiefbau GmbH & Co.KG is under terminating works continued by Kangurt-2 llc

	distribution networks in DMAs A1, A2, A3, & A4.											
	Replacement of water distribution network & installation of measuring devices in DMAs. Lot 2: Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1.	Joint venture between between "Blue Star Group" LLC and LLC "Joint Venture Ittihod Inshoot and Zumrut"	9 Jun 2022	Sep 2022	Aug 2022	Aug 2022	Odinaev R	Dusmatov E	Oct 2022	(April 2024)	0%	32%

Note: The Month/Years in brackets are planned schedule.
COVID-19 HSMP = COVID-19 Health and Safety Management Plan, ERP = Emergency Response Plan, SSEMP = site-specific environmental management plan

2.2.1 Project environmental management

24 The Project Implementation group under DVK set up by Resolution of the Government of Tajikistan for management of the contracts implementation hired Environmental Specialist Mr. K.Kholov in October 2019.

25 PMDSC hired National environmental consultant Mr. Dilshod Dadobaev in February 2021 and International environmental consultant Mr. Abu Nahid Munir Uddin in September 2021.

26 Summary of mobilization of environmental personnel for this project is in the Table 2 below

Table 2: Summary of Environmental Personnel

Environmental Personnel	Allocated PMs	Date of assignment	Name
Environmental Safeguards Specialist under the PIG	Full-time	05 Oct 2019	Kholov Kamoliddin
International Environmental Specialist (IES) under the PMDSC	2 PMs (intermittent)	30 Sep 2021	Abu Nahid Munir Uddin
National Environmental Specialist (NES) under the PMDSC	18 PMs (intermittent)	23 Feb 2021	Dilshod Dadobaev

PIG = Project Implementation Group, PM = person-month, PMDSC = Project Management Support, Design, and Supervision Consultant

Note: According to the IEE report (Table 28), the Project requires (i) a full-time Safeguards Specialist under the Project Implementation Group (PIG), and (ii) 3 person-months (PMs) of International Environmental Specialist (IES) under the Project Management Support, Design, and Supervision Consultant (PMDSC).

27 Project Organization Structure and environmental team are shown in Figure 4.

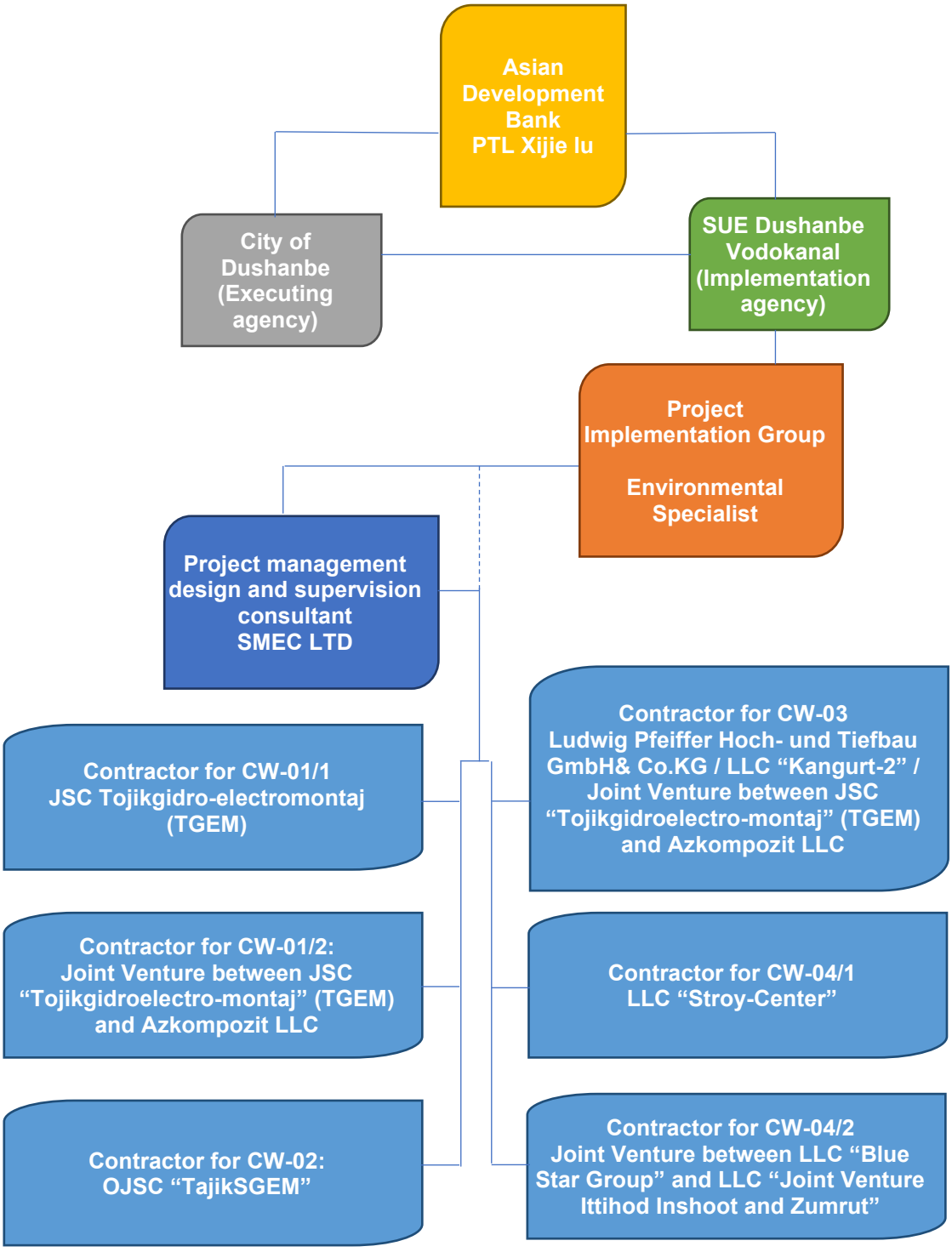


Figure 4. Project Environmental Organization Chart

2.3 Project Activities During Current Reporting Period

2.3.1 Construction works on CW-03 Rehabilitation of the south sewage collector

28 Due to financial problems, the contractor of the CW-03 sub-project stopped all its works and contract with Ludwig Pfeiffer Hoch- und Tiefbau GmbH& Co.KG is in termination process.

29 In order to complete the unfinished works left by Ludwig Pfeiffer Hoch- und Tiefbau GmbH& Co.KG and rehabilitation of the southern sewer collector between sections K39-K50, K81-K94 have been signed the Contract CW-03/2 with Kangurt-2 LLC on May 17, 2022. The contractor Kangurt-2

LLC performed the following works in the reporting period.

- Laying pipes in section K90-K82 and K56-K45
- Bypass existing metal pipes
- Restoring roads in section between sections K94-K90 and K50-K56

Photo 1: Preparing base for laying the pipe, 08 August 2022

Photo 2: Asphalt laying section K53-K50, 14 October 2022

Photo 3: Installation of chambers K83, 14 October 2022

Photo 4: Earthworks section K50-K45, 01 November 2022

2.3.2 Construction works on CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir, & replacement of water distribution network in DMAs A14 & AB15.

30 Contractor JSC TajikSGEM started construction works in February 2022. The contractor performed the following works in the reporting period:

- For the construction of 2x2000m3 reservoirs the following works were performed:
  - completion of the formwork and concreting of the walls of Reservoirs;
- Works on pipe laying:
  - installed and tested pipes DN280 - 13m;
  - installed and tested pipes DN200 - 310m;
  - installed and tested pipes DN160 – 754m;
  - installed and tested pipes DN125 – 540m;
  - installed and tested pipes DN90 – 126m;
  - installed and tested pipes DN75 – 36m;
- Works on laying of 10kV power cable are underway.

Photo 5: Construction of reservoirs in Khovaron, 13 July 2022

Photo 6: Construction of reinforcements of reservoirs' wall, 01 November 2022

Photo 7: Trenches for installation pipes, metal footbridges installed, 19 July 2022

Photo 8: Excavation for laying of 10kV power cable, October 2022

2.3.3 Rehabilitation of Water Supply System in Shomansur district Phase 1. CW-01/1: Reconstruction of the water intake structure KAF-1.

31 Contractor JSC Tajikgidroelectromontaj started construction works in April 2022. The contractor performed following works in the reporting period:

- Construction works in Transformer substation No 1
- Construction works in Laboratory and operators' room
- Construction works in Transformer substation No 2
- Construction works in Cesspool 55 m^3
- Construction works in progress Wall Fencing
- Construction works in progress Pumping Stations 1st lift

Photo 9: Concreting base for fencing wall, 03 September 2022

Photo 10: Backfilling of the soil for Transformer substation no.1 as of 30, 05 September 2022

Photo 11: Installation of the grids of the Cesspool's walls, 14 October 2022

Photo 12: Construction of formworks for the well no.59 as of 22 December 2022

2.3.4 Rehabilitation of Water Supply System in Shomansur district Phase 1. CW-01/2: Construction and rehabilitation of portions of main water pipeline.

32 Contractor Joint venture JSC Tajikgidroelectromontaj and LLC Azkompozit started construction works in March 2022. During the reporting period, the Contractor carried out earthworks and installation of GRP pipes in following sections.

- From the main chamber on Ayni street to PS 191 micro district
- From KAF to the railway depot
- Dismantling and restoration of the Railroad for crossing the waterline under the railway

Photo 13: Compacting base for pipe installation, 11 October 2022

Photo 14: Excavation for pipe laying Ayni street to PS 191 micro districts, 15 November 2022

Photo 15: Dismantling of the Railroad for crossing the waterline under the railway, November 2022

Photo 16: Pipelaying, December 2022

2.3.5 Construction works on CW-04/1: Replacement of distribution network in DMAs A-1, A-2,A-3, A-4..

33 Contractor LLC Stroy Center started construction works in October 2022. During the reporting period, the Contractor carried out earthworks and installation of GRP pipes in following sections.

- Contractor installed 166 meters of GRP pipes Ø450 in DMA A-3 site.
- Carried out a pneumatic test of the installed GRP pipes at the DMA A-3
- Contractor, dismantled 340 meters of sidewalk and installed 132 meters of GRP pipes Ø400 in zone A-1

Photo 17: Information board installed, October 2022

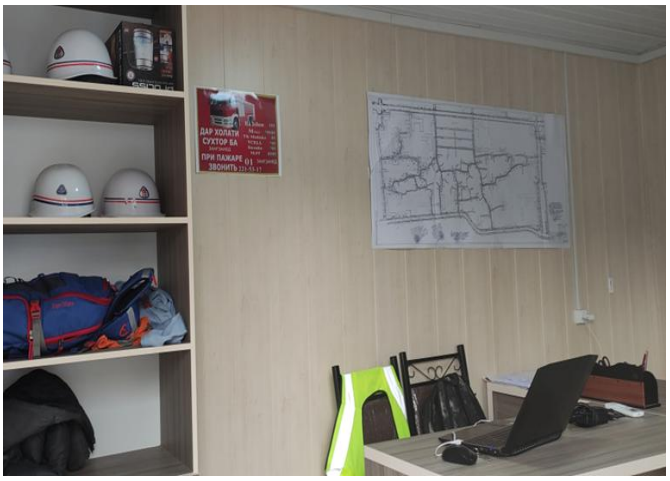


Photo 18: Contractor, supervision engineer and PIG site offices with all the amenities arranged, October 2022

Photo 19: Excavation trenches in A-1, November 2022

Photo 20: Dismantling paving stone A-1, November 2022

Photo 21: Compacting base for pipes A-3, December 2022

Photo 22: Warning signs installed, trenches fenced at DMA A-3 site, 23 December 2022

2.3.6 Construction works on CW-04/2: Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1..

34 Contractor Joint venture LLC ITTIHOD INSHOOT and LLC ZUMRUT started construction works in October 2022. During the reporting period, the Contractor carried out earthworks and installation of GRP pipes in following sections.

- Contractor installed 250 meters of pipes.
- Carried out a pneumatic test of the installed pipes

Photo 23: Information board installed, December 2022

Photo 24: Contractor, supervision engineer and PIG site offices with all the amenities arranged, October 2022

Photo 25: Excavation of trenches at DMA A-5 site, 18 October 2022

Photo 26: Warning signs installed, tranches excavation started with removal of surface asphalt coating at DMA A-5 site, 18 October 2022

Photo 27: Remote places of maintenance of equipment, 18 October 2022

Photo 28: Reinstatement of street paving stone at DMA A-5 site, 23 December 2022,

2.4 Changes in project design

35 No changes in project design were done in the reporting period.

2.5 Description of Any Changes to Agreed Construction methods

36 No changes to agreed construction methods were done in the reporting period.

3 ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

37 The Project management design and supervision Consultant is responsible to carry out day-to-day management of project execution. Environmental specialist of Project management design and supervision Consultant (PMDSC) jointly with Environmental specialist of PIG conducted regular supervision of the construction works regarding implementation of environmental safeguards requirements and, in particular, for oversight and reporting on the Contractor's performance in the implementation of the EMP/SSEMP. International Environmental specialist visited all construction sites and he gave advice on improving monitoring and interaction with contractors and people affected by the project.

38 Activities carried out by Environmental consultants during the monitoring period (international and national, respectively) are provided in Table 3 below.

Table 3: Environmental Safeguards Activities Carried out During Reporting Period (July – December 2022)

Environmental Safeguard Activities
The international environmental expert (Abu Nahid Munir Uddin) of Supervision Consultant (SMEC) - Preparing Environmental Monitoring Plans - Site visit, audit of implementation of SSEMP and EMP - Conducted training for PIG and PMDSC National environmental consultants - Review of Semiannual Environmental Monitoring Report
The national environmental expert (Dilshod Dadobaev) of Supervision Consultant (SMEC) - Conducted site visits, audit of implementation of SSEMP and EMP - Audit the corrective actions are implemented by the set deadlines. - Preparation of draft Semiannual Environmental Monitoring Report

3.2 Site Audits

39 The overall objective of the inspections and audits is to ensure good environmental practice in project operations, and enable to establish good governance and efficient environmental management of day-to-day activities. Site inspections and audits in the reporting period are shown in Table 4 below

Table 4: Site visits and audits in the reporting period

№	Date	Object	Auditors	Purpose of Audit	Summary of any Findings
1	13 July 2022	CW-02 for "Reconstruction of PS Khovaron, construction of Zebunisso reservoir,".	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Specialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	• Some workers didn't wear PPE, Contractor instructed to conduct every day toolbox talk on PPE wearing
2	18 July 2022	CW-03 for "Rehabilitation of the	Dadobaev D. SMEC Env.	Monitoring of the fulfilment of the	The implementation of EMP/SSEMPs and

№	Date	Object	Auditors	Purpose of Audit	Summary of any Findings
		south sewage collector".	Consultant	requirements of the SSEMP during construction works	environmental safeguards can be considered as satisfactory
		CW-02 for "Reconstruction of PS Khovaron, construction of Zebunisso reservoir,".			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW- 01 Lot-1 Reconstruction of the water intake structure KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-01/2: Construction and rehabilitation of portions of main water pipeline.			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
4	19 July 2022	CW-03 for "Rehabilitation of the south sewage collector".	SMEC Env. Consultant Kholov K. PIG Env. Scpecialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
5	25 July 2022	CW-02 for "Reconstruction of PS Khovaron, construction of Zebunisso reservoir,".			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
6	08 August 2022	CW-03 for "Rehabilitation of the south sewage collector".	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Scpecialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	• Clear agricultural lands from stones
		CW-02 for "Reconstruction of PS Khovaron, construction of Zebunisso reservoir,".			• The number of metal footbridges with handrails installed by the Contractor is considered not enough • Trenches are not properly fenced at all segments
		CW- 01 Lot-1 Reconstruction of the water intake structure KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-01 lot 2: Construction and rehabilitation of portions of main water			The implementation of EMP/SSEMPs and environmental safeguards can be considered as

№	Date	Object	Auditors	Purpose of Audit	Summary of any Findings
		pipeline.			satisfactory
7	23 August 2022	CW-02 for “Reconstruction of PS Khovaron, construction of Zebunisso reservoir,”.	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Specialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
8	05 September 2022	CW-03 for “Rehabilitation of the south sewage collector”.	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Scpecialist Abu Nahid Munir Uddin Smec International Environmental consultant	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
9	06 September 2022	CW-02 for “Reconstruction of PS Khovaron, construction of Zebunisso reservoir,”.	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Scpecialist Abu Nahid Munir Uddin Smec International Environmental consultant	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW- 01 Lot-1 Reconstruction of the water intake structure KAF-1		Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-01 lot 2: Construction and rehabilitation of portions of main water pipeline.		Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
10	15 September 2022	CW-03 for “Rehabilitation of the south sewage collector”.	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Scpecialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	All open trenches fenced. All safety precautions during work in residential area are met.
	22 September 2022	CW-02 for “Reconstruction of PS Khovaron, construction of Zebunisso reservoir,”.	Dadobaev D. SMEC Env. Consultant	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
11	30 September	CW-04 lot 1 Replacement of water	Dadobaev D. SMEC Env.	Taking baseline samples for Air and	Samples in the sensitive points taken as per

№	Date	Object	Auditors	Purpose of Audit	Summary of any Findings
	2022	distribution networks in DMAs A1, A2, A3, & A4.	Consultant Kholov K. PIG Env. Specialist Represantative of laboratory of State analytical centre of CEP	Noise before starting physical works	normative requirements
		CW-04 lot 2 Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1			Samples in the sensitive points taken as per normative requirements
12	06 October 2022	CW-03 for "Rehabilitation of the south sewage collector".	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Specialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir,			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW- 01 Lot-1 Reconstruction of the water intake structure KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-01 lot 2: Construction and rehabilitation of portions of main water pipeline.			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
13	11 October 2022	CW-03 for "Rehabilitation of the south sewage collector".	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Specialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
14	14 October 2022	CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir,	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Scpecialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW- 01 Lot-2 Reconstruction of PS Khovaron, construction of Zebunisso reservoir			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW- 01 Lot-1 Reconstruction of the water intake structure			The implementation of EMP/SSEMPs and environmental safeguards

№	Date	Object	Auditors	Purpose of Audit	Summary of any Findings
		KAF-1			can be considered as satisfactory
15	18 October 2022	CW-03 for "Rehabilitation of the south sewage collector".	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Scpecialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir,			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW- 01 Lot-1 Reconstruction of the water intake structure KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-01 lot 2: Construction and rehabilitation of portions of main water pipeline.			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-04 lot 1 Replacement of water distribution networks in DMAs A1, A2, A3, & A4.			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW-04 lot 2 Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
16	20 October 2022	CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Specialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
17	01 November 2022	CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir,	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Scpecialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
		CW- 01 Lot-1 Reconstruction of the water intake structure KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory

№	Date	Object	Auditors	Purpose of Audit	Summary of any Findings
		CW-01 lot 2: Construction and rehabilitation of portions of main water pipeline.			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory
18	10 November 2022	CW- 01 Lot-2 Reconstruction of PS Khovaron, construction of Zebunisso reservoir	Joint site visit with safeguard staff and engineers of SMEC and safeguard staff and engineers of PIG	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW- 01 Lot-1 Reconstruction of the water intake structure KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir,			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW-03 for “Rehabilitation of the south sewage collector”.			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW-04 lot 1 Replacement of water distribution networks in DMAs A1, A2, A3, & A4.			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW-04 lot 2 Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
19	15 November 2022	CW-03 for “Rehabilitation of the south sewage collector”.	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Specialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
20	12 December 2022	CW- 01 Lot-2 Reconstruction of PS Khovaron, construction of Zebunisso reservoir	Joint site visit with safeguard staff and engineers of SMEC and safeguard staff and engineers of	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW- 01 Lot-1 Reconstruction of the			The implementation of EMP/SSEMPs and

№	Date	Object	Auditors	Purpose of Audit	Summary of any Findings
		water intake structure KAF-1	PIG		environmental safeguards can be considered as satisfactory.
		CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir,			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW-03 for "Rehabilitation of the south sewage collector".			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW-04 lot 1 Replacement of water distribution networks in DMAs A1, A2, A3, & A4.			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW-04 lot 2 Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
21	19 December 2022	CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir,	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Scpecialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
22	23 December 2022	CW-04 lot 1 Replacement of water distribution networks in DMAs A1, A2, A3, & A4.	Dadobaev D. SMEC Env. Consultant Kholov K. PIG Env. Specialist	Monitoring of the fulfilment of the requirements of the SSEMP during construction works	The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.
		CW-04 lot 2 Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1			The implementation of EMP/SSEMPs and environmental safeguards can be considered as satisfactory.

40 Photos below illustrate part of findings from the site inspections.

Photo 29: CW-02 Missing fences along the trench, footbridge weak, 08 August 2022

Photo 30: CW-02 The trenches fenced with light-reflecting tape, metal footbridges with handrails installed, 06 September 2022

Photo 31: Cleaning of the bore well, workers equipped with PPE, 29 November 2022

Photo 32: CW-01/2 The trench fenced with light-reflecting tape, workers equipped with PPE and wear it. 14 October 2022

Photo 33: CW-03 Manhole 95 fenced with a rigid fence, 08 August 2022

Photo 34: CW-03 Manhole K95, territory fully recovered, 23 December 2022

Photo 35: CW-03 The agricultural lands cleared from waste and stones, 15 September 2022

Photo 36: CW-03 The road in the residential area fully recovered and paved with asphalt, 14 October 2022

Photo 37: CW-03 Agricultural lands fully reinstated and handed over to landowners, 29 December 2022

Photo 38: CW-04/2 Warning signs installed, the trench fenced, 18 October 2022

Photo 39: CW-04/2 The trenches fenced light-reflecting tape, a metal footbridge with handrails installed, 18 October 2022

Photo 40: CW-04/2 The area recovered after completion of works, 23 December 2022

3.3 Issues Tracking (Based on Non-Conformance Notices)

41 Table 5 summarizes implementation Status of Corrective Actions proposed in the reporting period. All issues from the previous period were closed during the previous monitoring period (by June 30, 2022)

Table 5: Implementation Status of Corrective Actions proposed in the previous monitoring reports

Issue	***Required Action***	**Responsibility**	***Timing (Target Dates)***	***Description of Resolution and Timing (Actual)***	***If not yet resolved, indicate the reason why and specify further required action and timeframe.***
Issues Identified in the previous monitoring reports					
1. Some waste and stones observed in the agricultural lands	Clear agricultural lands from stones and waste	Contractor CW-03/2	10 September 2022	**Resolved** 15 September 2022 Lands cleared from waste and stones (Photo 35) **Fully resolved** 23 December 2022 All construction works in agricultural lands completed. Agrotechnical measures implemented and handed over to landowners	
2. Installed footbridges weak and do not meet safe requirements	Contractor should install metal footbridges with handrails	Contractor CW-02	10 September 2022	**Resolved** 06 September 2022 (Photo 30)	
3. Trenches not fenced	Trenches must be fenced	Contractor CW-02	10 September 2022	**Resolved** 06 September 2022 (Photo 30)	
4. Some workers didn't wearing PPE	All workers should be provided with seasonal PPE. Contractor should strictly control wearing PPE. Talk about issue of wearing PPE in daily toolbox meeting	All contractors	December 2022	**Resolved** 12 December 2022 (Photo 41)	

DVK = State unitary enterprise (SUE)" Dushanbevodokanal", PIU = Project Implementation Unit

3.4 Trends

42 Some trends can be identified from the previous SAEMRs. The following table shows the number of issues identified in each period and the percent of closed issues at the end of the period.

Table 6: Trends on issues as per semiannual monitoring reports

SAEMR Number and period	Unsolved Issues from previous periods	No of issues identified in the period	Total	No of issues Closed	% of issues Closed
1st SAEMR, January-June 2020	0	0	0	0	0%
2nd SAEMR, July-December 2020	0	7	0	0	0%
3rd SAEMR, January-June 2021	7	8	15	12	80%
4th SAEMR, July-December 2021	3	11	14	8	60%
5th SAEMR, January-June 2022	1	4	5	5	100%
6th SAEMR, July-December 2022	0	4	4	4	100 %

3.5 Unanticipated Environmental Impacts or Risks

43 During the reporting period, COVID-19 is viewed as an unanticipated impact and risk to the community and workers. There were no major delays during the monitoring period due to the COVID-19 related consequences. No cases of COVID-19 among workers, PIG and PMDSC staff were reported during the monitoring period.

44 The Contractors developed Occupational Health and Safety Plan as part of its SSEMP which includes, inter alia, corresponding measures on prevention of the spread of COVID-19. The Contractor's SSEMP also include Emergency Management Plan.

45 Wearing masks are not mandatory in Tajikistan since March 2022.

4 RESULTS OF ENVIRONMENTAL MONITORING

46 During this period of July to December 2022, the baseline analysis on noise and air quality was conducted under an agreement and by an order by the PMDSC to Analytical laboratory of the Committee for Environmental Protection. Environmental monitoring is overseen by the approved EMPs, IEEs and EIAs, environmental standards and other environmental commitments.

4.1 Water quality monitoring

47 All works in riverbed and near water courses completed therefore no water quality samples taken in the reporting period.

4.2 Air quality monitoring

48 During this period, baseline instrumental measurements were recorded at six point near the sensitive areas for subproject CW-04/1 and 3 point near the sensitive areas for subproject CW-04/2 before starting construction works. Monitoring results of air quality measurements (see Figure 5: Location of noise and air sampling points showing measurement points) in the Project impact zone meet Tajikistan environmental standard.

Table 7: Baseline Air Quality Results

Name of Ingredients			$PM_{2.5}$, mg/m^3	PM_{10}, mg/m3	CO, mg/m3	CO_2, mg/m3	Total volatile organic compounds (TVOC)	**AQI**
MPC			25	50	3	9000		0-100
CW-04 Lot 1	**Point 1**	**Hospital**	38,4	65,7	0,2	2010	0,07	107
	Point 2	**University**	36,3	63,8	0,2	2002	0,09	102
	Point 3	**Kindergarten**	29,8	51,2	0,1	1998	0,09	85
	Point 4	**Vocational lyceum**	37,9	65,6	0,1	1002	0,04	106
	Point 5	**Residential area**	22,5	38,2	0,1	1089	0,04	74
	Point 6	**School 23**	22,9	36,6	0,1	1009	0,08	75
CW-04 Lot 2	**Point 7**	**Police academy**	20,6	34,7	0,2	2098	0,09	66
	Point 8	**School 31**	14,2	24	0,2	2054	0,09	56
	Point 9	**Residential area**	21,6	35,1	0,1	1009	0,04	67

4.3 Noise monitoring

49 During this period, instrumental measurements were done as baseline measurement at six point near the sensitive areas for subproject CW-04/1 and three point near the sensitive areas for subproject CW-04/2 before starting construction works. The noise meter was programmed to accumulate the one-hour average noise level (dBA LAeq (1 hour)) noise descriptors continuously over the entire monitoring period. The monitoring results provided in the table below.

Table 8: Baseline Noise Measurement Results

Location of measeurement	MPC	Noise, dBA
CW-04/1		
Point 1: Hospital	55	67
Point 2: University	55	64
Point 3: Kindergarten	55	63
Point 4: Vocational lyceum	55	60
Point 5: Residential area	55	76
CW-04/2		
Point 7: Police academy	55	67
Point 8: School 31	55	70
Point 9: Residential area	55	70

Note: The insignificant deviation expressed in the noise levels exceeding the standard values is connected with location of people's (road and railway traffic passengers, school childred, kindergarten kids) concentration areas and noisy facilities, such as taxi parkings, railway station, airport, etc.

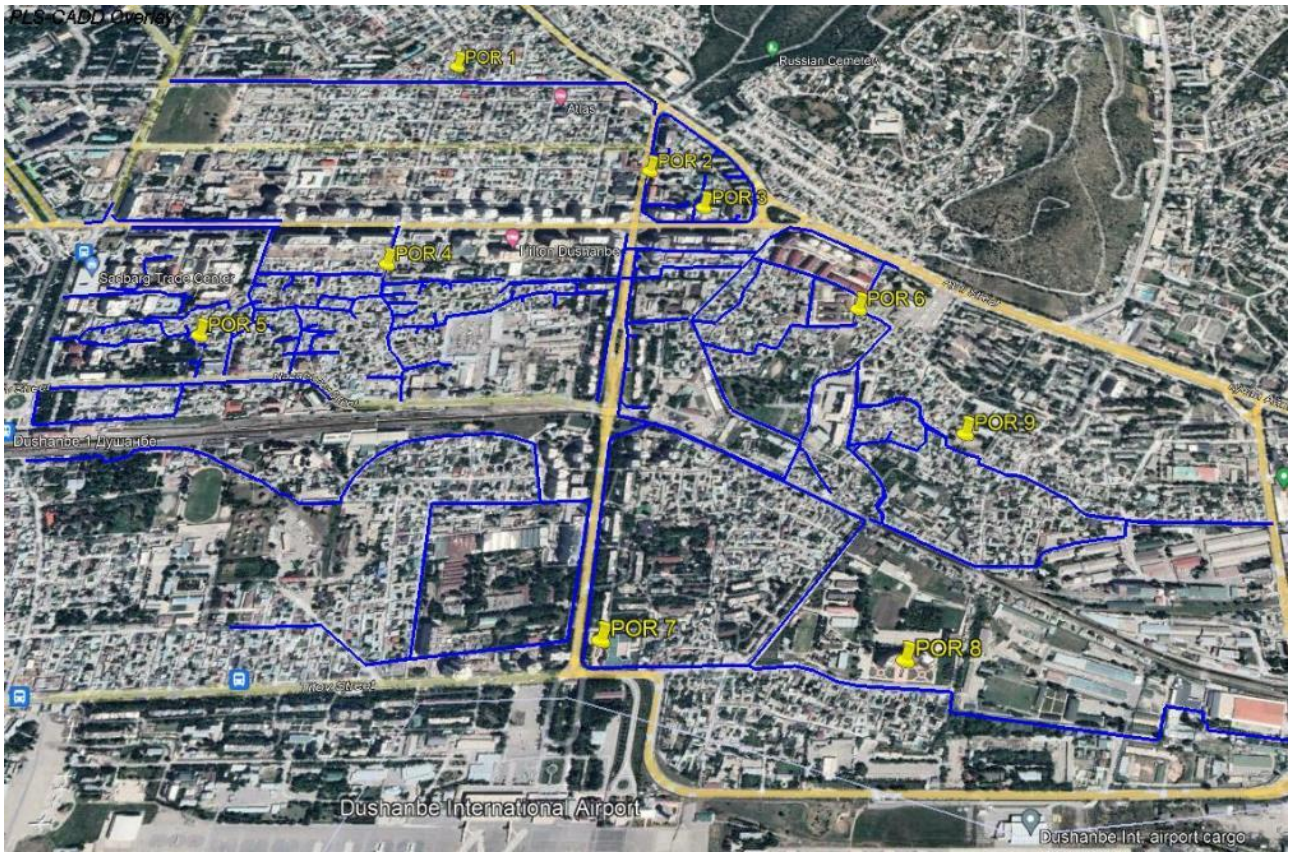


Figure 5: Location of noise and air sampling points

4.4 Flora and fauna monitoring

50 Monitoring of fauna is not foreseen for this Project according to IEE/EMP. All works take place within the localized urban area.

4.5 Waste Management

4.5.1 Current Period

51 The Contractor has liaised with Local Administration for disposal of construction waste. The waste management meet the requirements on collection point for household waste. The household wastes are taken by agreement with municipalities of Dushanbe to designated city landfill. There is agreement with Dushanbe municipal service authorities on disposal of construction waste in landfill located in mahalla Chorbog.

52 During reporting period in total for ongoing 5 subproject 1.4 tone of household wastes have been disposed at designated landfill.

4.6 Health and Safety

53 The Contractors took all precautions at all construction sites for health and safety of the workers and the people of the surroundings in accordance to the Health and Safety Plan submitted by the Contractor and approved by the Dushanbe Environmental Protection Department, after the approval of PIG, following the review and approval of PMDSC. Health and Safety measures are continuously applied, maintained and monitored by the health and safety manager of the Contractor and Environmental and social staff of the PMDSC and the PIG. No accidents or incidents have been recorded during the period.

4.6.1 Community health and safety

54 The territories of all construction sites are mostly fenced, appropriate informational and warning signs are installed. During reporting period no incidents occurred and lead to community health and safety issues, including the traffic accidents.

4.6.2 Workers health and safety

55 Health and Safety measures were continuously applied, maintained and checked by the health and safety managers of Contractors and monitored by the Environmental and social guarantee staff of the PMDSC and the PIG. No accidents or incidents have been recorded during the period.

56 The Contractor assumed the following obligations:

- Provision of PPE (protective clothing, gloves, shoes) and special protective equipment (helmet, goggles and ear protectors, etc) to personnel in accordance with standards (SNiP III 4-80);
- Provision of protective guardrail of portable type, fencing of stationary type, separation grid, roof for holes, safety warning signs;
- Constant provision of personnel with clean drinking water;
- Ensuring safe disposal of construction waste;
- Availability of fire extinguishers, facilities, firefighting equipment;
- Cooperation with health agencies of Dushanbe city and making first aid kits available.

57 No any separate construction camp established for the project because all workers are local. The offices of Contractors are in sleeping-cars.

4.7. Summary of Monitoring Outcomes

58 The monitoring of the works is progressing well and follows the requirements of EMP. The Consultant has made efforts based on the findings of the monitoring period to train the Contractors' environmental staff and ensure that the project is implemented in a manner that is compliant with the environmental requirements of the project.

59 Status of compliance with related covenants on environmental safeguards in the Project's Grant Agreement signed between Republic of Tajikistan and ADB on 29 November 2018[4] is summarized in Table 9.

Table 9: Grant Agreement Compliance Status

Schedule	Paragraph	Covenant	Compliance Status
3	3	Environment The Recipient shall, or shall cause DVK, through SEADC, to, not award any Works contract which involves environmental impacts until: each of ADB and the State Committee on Environment of the Recipient has granted the final approval of the IEE; and the Recipient has incorporated, or has caused DVK, through SEADC, to incorporate, the relevant provisions from the EMP into the Works contract.	Complied provisions of EMPs are included to the works contract
3	9	**Environment** The Recipient shall ensure, or shall cause DVK, through SEADC, to ensure, that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Recipient relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the IEE, the EMP, and any corrective or preventative actions set forth in the Safeguards Monitoring Report or corrective action plan.	Complied. Ongoing. DVK ensures that preparation and design will comply with Environmental Safeguards requirements and applicable laws and regulations of Tajikistan. DVK/ PIG has appointed the Environmental Safeguards Specialist to ensure compliance. .
3	13	Human and Financial Resources to Implement Safeguards Requirements The Recipient shall make available or cause SEADC to make available necessary budgetary and human resources to fully implement the EMP and the RP.	Complied. There are ES hired by PIG, IES and NES hired by PMDSC.

[4] ADB. Grant Agreement (Special operations) for Grant Dushanbe Urban Water Supply and Sanitation project (29 November 2018): https://www.adb.org/sites/default/files/project-documents/50347/50347-002-grj-en.pdf

Schedule	Paragraph	Covenant	Compliance Status
3	14	**Safeguards–Related Provisions in Bidding Documents and Works Contracts** The Recipient shall ensure, or shall cause DVK, through SEADC, to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to: a) comply with the measures relevant to the contractor set forth in the IEE, the EMP and the RP (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set forth in the Safeguards Monitoring Report or corrective action plan; b) make available a budget for all such environmental and social measures; c) provide Recipient, through DVK, with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP and the RP; d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	Complied. Ongoing.
3	15	**Safeguards Monitoring and Reporting** The Recipient shall, or cause DVK, through SEADC to do the following:	Complied. Last semi-annual environmental monitoring report (covering January to June 2022) was submitted and disclosed on ADB website[5] and at the DVK

[5] Semiannual environmental monitoring report (January-June 2022) disclosed at ADB web-site: https://adb.org/sites/default/files/project-documents/50347/50347-002-emr-en_3.pdf

Schedule	Paragraph	Covenant	Compliance Status
		a) submit semiannual Safeguards Monitoring Reports to ADB within 1 month after the reporting period at the end of each half of the calendar year, and disclose relevant information from such reports to affected persons promptly upon submission; b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP and the RP (including, without limitation, as a result of any change of design, baseline or other current conditions), promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP or the RP promptly after becoming aware of the breach.	website in Russian[6] in November 2021 Complied. COVID-19 HSMP and ERP were prepared by Contractor of all packages as part of its SSEMP; no any COVID-19 cases were identified among the workers during the monitoring period. Suspension of CW-03 civil works by the Contractor in December 2021 was considered as an unanticipated impact, whereupon in the beginning of January 2022 a detailed description of the event was presented to the ADB, along with mitigation and management measures to avoid any environmental impacts, incorporated in a separate photoreport in January 2022 d) No breach.
3	17	**Labor Standards, Health and Safety** The Recipient shall ensure, or shall cause DVK, through SEADC, to ensure, that the core labor standards and the Recipient's applicable laws and regulations are complied with during Project implementation. The Recipient shall, or shall cause DVK, through SEADC, to, include specific provisions in the bidding documents and contracts financed by ADB under the Project requiring that the contractors, among other things: a) comply with the Recipient's applicable labor law and regulations and incorporate applicable workplace occupational	Complied. Ongoing.

[6]Semiannual environmental monitoring report (January-June 2022) disclosed at DVK website: http://okd.tj/wp-content/uploads/2022/11/final-taj-g0612-emor-2022-jan-jun-rus-1.pdf. The report disclosed in Russian language because all affected people well understand Russian)

Schedule	Paragraph	Covenant	Compliance Status
		safety norms; b) do not use child labor; c) do not discriminate workers in respect of employment and occupation; d) do not use forced labor; e) allow freedom of association and effectively recognize the right to collective bargaining; and f) disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the Project and to members of the local communities surrounding the Project area, particularly women.	
3	18	Labour Standards, Health and Safety The Recipient shall, or shall cause DVK, through SEADC, to, strictly monitor compliance with the requirements set forth in the foregoing paragraph and provide ADB with regular reports.	Complied. Ongoing.

60 Status of compliance with the Project EMP attached to IEE is summarized in **Ошибка! Источник ссылки не найден.**.

Table 10: Implementation Status of EMP during the construction period for all packages

Subject	Mitigation / Management Measure	Implementation Responsibilities	Monitoring Responsibilities	Compliance Status
Air Quality	Implementation of the Air Quality Management Plan	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes Complied. Ongoing.
	• No equipment using any fuel that may produce air pollutants, including mobile generators, will be installed without consent of the Engineer. • Construction equipment will be maintained to a good standard and fitted with pollution control devices which will be regularly monitored by the Engineer.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes Yes.
	No burning of debris or other materials will occur on the site.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes
	• The Contractor will ensure that material stockpiles will be located in sheltered areas and be covered with tarpaulins or other such suitable covering to prevent material becoming airborne.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Complied.
	• All trucks used for transporting materials to and from the sites will be covered with canvas tarpaulins, or other acceptable type cover (which will be properly secured) to prevent debris and/or materials from falling from or being blown off the vehicle(s).	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes
	• Effective use of water sprays will be implemented (e.g., Carry out watering for dust control at least 3 times a day: in the morning, at noon, and in the afternoon during dry weather with temperatures of over 25°C, or in windy weather.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes
	• Avoid overwatering as this may make the surrounding muddy). All water used for controlling dust will be free of odor and pollution.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes
Pipelines	• Deep excavations in unstable soils will be shored by the Contractor, and below grade construction brought to grade quickly, then excavations closed. • Surface soils will be temporarily graded-to-drain and protected as necessary to reduce erosion and sediment runoff.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing. Yes. Ongoing
	• Minimize the period of time that a segment of excavation is kept open by not allowing trenching to outpace pipe laying by more than a day or so. Trenches will be back- filled and ground	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing.

Subject	Mitigation / Management Measure	Implementation Responsibilities	Monitoring Responsibilities	Compliance Status
	leveled after installation of piping. • Place only bedding and pipe materials at the location that will be used within the next few days work, well out of the line of traffic. Clean up and remove from the site any excess spoil, wood used for shoring and construction materials upon completion of the segment. Compact soil in trench and clean surrounding pavement areas to reduce blowing dust. • Provide temporary bridging across the trench at entries to residences and businesses. Otherwise, provide tape barriers to reduce the possibility of an accident. • Once work is complete on a segment, pavement surfaces and masonry works (curbs, abutments, stairs, drains, drives, etc.) will be repaired and returned to original condition. All roadway surfaces will be repaired as construction progresses; bid packages will contain a unit bid price for roadway repair, and for repair of any other facility, structure or surface that is likely to be damaged in quantity during construction. • The construction approach will minimize the time that any one segment is under construction or roadway/walkway left unrepaired to reduce the construction impact, done by limiting the length of open trench to 100 m or less. • The public will be barred from construction areas, and excavations will be fenced and sign posted. Workers will not be allowed to enter trenches deeper than waist height unless they are properly shored.			Yes Yes Yes Yes Yes
	• The Contractor will strictly follow his Traffic Management Plan (TMP). • Where practical roads shall remain open at all times. • If any diversions are required, they shall be outlined in the TMP.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing. Yes Yes
	Where tree cutting occurs on public land the Contractor will follow the CEP approved procedures for tree cutting.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing.
	• Where practical the Contractor shall remove existing trees and replant them within the vicinity of the pipeline so as to cause minimal impact. • Where this is not possible the Contractor shall discuss with CEP	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing. Yes

Subject	Mitigation / Management Measure	Implementation Responsibilities	Monitoring Responsibilities	Compliance Status
	alternative locations for the re-planting of the trees. • Where trees will be cut they shall be replaced on a 3:1 basis. The replaced trees shall be the same as the trees cut. The Contractor will be responsible for maintaining the trees for a six month period. If any of the trees die within this period, the Contractor will replace the tree on a 1:1 basis.			Yes
	• Pipelines can be disinfected through chlorination. Initial chlorine concentrations shall be made high enough (about 50 mg/l) to overcome the chlorine demand of contaminants. • Chlorination is repeated until residual chlorine is one mg/l, after which the structure is flushed out before being placed into use. • Installation contracts shall include a bid item for disinfection of installed piping.	Contractor	PIG & PMDSC	Yes. Ongoing. Yes, Ongoing Yes ongoing
Waste Management	• Implementation of the Waste Management Plan	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing.
	• Where possible, surplus materials will be reused or recycled.	Contractor to implement mitigation and keep records of the types and volumes of materials recycled.	N/A	Yes. Ongoing.
	• Oil and fuel will be stored in mobile bunds to contain spillage (the bund will be able to contain at least 110% of the volume of the largest storage tank within the bund). • Spill kits will be provided at all construction sites where fuel and oil is stored and used.	Contractor	Inspection of the completed containment measures by PIG & PMDSC	Yes. Ongoing.
	• Waste, both hazardous and non-hazardous, shall be collected and disposed of by a licensed waste management contractor. • The Contractor will keep copies of the waste management company's licenses on file at his site office. • The Contractor shall also keep a record of the waste volumes and types removed from the site and the waste transfer notes provided by the waste management contractor.	Contractor	• Monthly inspections of waste management records by PIG & PMDSC • Monthly inspections of waste management records by PIG &	Yes. Ongoing. Yes Yes

Subject	Mitigation / Management Measure	Implementation Responsibilities	Monitoring Responsibilities	Compliance Status
	• Suitable number and sized waste containers will be provided at each site for organic waste, hazardous waste and non-hazardous wastes.		PMDSC	Yes
OHS	Implementation of the OHS Plan.	Contractor	Routine site inspections by the PIG & PMDSC	Yes. Ongoing.
Noise	• Works will be scheduled to coincide with periods when people would least likely be affected; work hours and work days will be limited to less noise-sensitive times. Hours-of-work will be approved by the Engineer having due regard for possible noise disturbance to the local residents or other activities. Construction activities will be strictly prohibited between 10 PM and 7 AM in the residential areas. When operating close to sensitive areas (within 250 meters) such as medical facilities and schools, the Contractor's hours of working shall be limited to 8 AM to 6 PM; • Use temporary noise barriers while working in sensitive locations in case accidence of allowable limits is expected. Placing the barrier close to the source proves to be effective. • Give notice as early as possible to sensitive receptors for periods of noisier works such as excavation. Describe the activities and how long they are expected to take. Keep affected neighbours informed of progress. • Within normal working hours, where it is reasonable to do so: o schedule noisy activities for less sensitive times. Provide periods of respite from noisier works (for example, periodic breaks from jackhammer noise). • The weekend/evening periods are important for community rest and recreation and provide respite when noisy work has been conducted throughout the week. Accordingly, work will not be scheduled during these times. • All mechanical plant is to be silenced by the best practical means using current technology. Mechanical plant, including noise-suppression devices, will be maintained to the manufacturer's specifications. Internal combustion engines are to be fitted with a suitable muffler in good repair. • Fit all pneumatic tools with an effective silencer on their air exhaust port.	Contractor	Routine site inspections by the PIG & PMDSC	Yes. Ongoing. Yes. Ongoing Yes. Ongoing Yes. Ongoing Yes. Ongoing Yes. Ongoing Yes. Ongoing Yes. Ongoing

Subject	Mitigation / Management Measure	Implementation Responsibilities	Monitoring Responsibilities	Compliance Status
	• Install less noisy movement/reversing warning systems for equipment and vehicles that will operate for extended periods, during sensitive times or in close proximity to sensitive sites. Occupational health and safety requirements for use of warning systems must be followed. • Turn off plant when not being used. • All vehicular movements to and from the site to only occur during the scheduled normal working hours, unless approval has been granted by the Engineer. • Where possible, no truck associated with the work will be left standing with its engine operating in a street adjacent to a residential area. • Provision of noise protection kits such as ear plug, earmuff, for workers who are working in the area with noise level is higher than 85 dB(A).			Yes. Ongoing Yes. Ongoing Yes. Ongoing Yes. Ongoing
River crossing	• The Contractor shall limit pier works to the low flow period in the Varzob (October to February).	Contractor	PIG & PMDSC	Yes. Ongoing.
	• Ensure no waste materials are dumped in the river. • Place generators more than 20 meters from the river. • Ensure that no wet or dry concrete waste is dumped in the river. • Provide areas where concrete mixers can wash out leftover concrete without polluting the environment. • Ensure that no hazardous liquids are placed within 10 meters of the river. • Provide portable toilets at bridge construction sites to prevent defecation by workers into the river.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing.
	• Ensure that workers are provided with correct PPE including harnesses and hi-vis life vests.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing.
PCR	• The structures identified in Table 20 shall be rehabilitated in consultation with the representatives in charge of the cemeteries. • Any trees cut will be replanted on a 1:3 basis.	Contractor	Routine monitoring throughout construction by PIG & PMDSC	Yes. Ongoing.

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4.7 Grievance Redress mechanism functioning

61 The contractors provided site offices that people will be able to get more information about the project works. The contractor periodically communicated to the public, through public consultation and notice boards, the scope and schedule of construction as well as certain construction activities that may cause disruptions and access restrictions. Noticeboards and signs were provided in Tajik language. During this period, no appeals (complains) with regard to environmental situation caused by the project were received.

5 FUNCTIONING OF THE SSEMP

5.1 SSEMP Review

62 The contract for Rehabilitation of the South Sewage collector was awarded to Ludwig Pfeiffer Hoch und Tiefbau GmbH& Co on 8 June 2020. The contractor submitted initial version of the SSEMP in 15 February 2021. The SSEMP was finally approved by the Dushanbe Environmental Protection Department, after the approval of PIG, following the review and approval of PMDSC on 23 February 2021 before the commencement of civil works.

63 The contractor of CW-03 had financial difficulties which didn't allow him to complete the work on the project. Therefore the contract with Ludwig Pfeiffer Hoch und Tiefbau GmbH& Co is under termination. To complete the so-called "urgent works", which have been making the situation critical, and certain unfinished works in sensitive locations, the two contracts were concluded respectively for the aforementioned works with subcontractor - LLC "Kangurt-2" on 24 January, 2022 and on 17 May 2022. During the execution of urgent works the LLC "Kangurt-was operating under the management of Ludwig Pfeiffer, and consequently under the umbrella of (following) Ludwig's SSEMP. The SSEMP of LLC "Kangurt-2" according to its second contract (i.e. of May 2022) for unfinished works has been received and approved in May 2022, before they started the works.

64 The contract for CW-01/1 "(CW-01) Rehabilitation of Water Supply System in Shomansur district Phase 1. Lot 1: Reconstruction of the water intake structure KAF-1" was awarded to JSC "Tojikgidroelectromontaj" (TGEM). The SSEMP was finally approved by the Dushanbe Environmental Protection Department, after the approval of PIG, following the review and approval of PMDSC on 23 February 2021 before the commencement of civil works.

65 The contract for CW-01/2 "(CW-01) Rehabilitation of Water Supply System in Shohmansur district Phase 1. Lot 2: Construction and rehabilitation of portions of main water pipeline." was awarded to Joint Venture between JSC "Tojikgidroelectromontaj" (TGEM) and Azkompozit LLC. The SSEMP was finally approved by the Dushanbe Environmental Protection Department, after the approval of PIG, following the review and approval of PMDSC on 23 February 2021 before the commencement of civil works.

66 The contract for CW-04/1 "(eplacement of water distribution network & installation of measuring devices in DMAs. Lot 1: Replacement of water distribution networks in DMAs A1, A2, A3, & A4. was awarded to LLC "Stroy-Center". The SSEMP was finally approved by the Dushanbe Environmental Protection Department, after the approval of PIG, following the review and approval of PMDSC on 29 August 2022 before the commencement of civil works.

67 The contract for CW-04/2 Replacement of water distribution network & installation of measuring devices in DMAs. Lot 2: Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1. was awarded to Joint venture between between "Blue Star Group" LLC and LLC "Joint Venture Ittihod Inshoot and Zumrut". The SSEMP was finally approved by the Dushanbe Environmental Protection Department, after the approval of PIG, following the review and approval of PMDSC on 12 September 2022 before the commencement of civil works.

Table 11: Status of SSEMPs for reporting period from July to December 2022

Management Plan	Status	Note
CW-03 Rehabilitation of the South Sewage collector	SSEMP received and approved by PIG on February 2021 before commencement of civil works SSEMP for continue works by LLC Kangurt-2 received and approved by PIG in May 2022	Scan letter from PIG with approval of SSEMP is in place
CW-01/1 Rehabilitation of Water Supply System in Shomansur district Phase 1. Lot 1:	SSEMP received and approved by PIG on April	Scan letter from PIG with approval

Reconstruction of the water intake structure KAF-1	2022 before commencement of civil works	of SSEMP is in place
CW-01/2 Rehabilitation of Water Supply System in Shohmansur district Phase 1. Lot 2: Construction and rehabilitation of portions of main water pipeline	SSEMP received and approved by PIG on March 2021 before commencement of civil works	Scan letter from PIG with approval of SSEMP is in place
CW-02 Reconstruction of PS Khovaron, construction of Zebunisso reservoir, & replacement of water distribution network in DMAs A14 & AB15	SSEMP received and approved by PIG on February 2022 before commencement of civil works	Scan letter from PIG with approval of SSEMP is in place
CW-04/1 “(eplacement of water distribution network & installation of measuring devices in DMAs. Lot 1: Replacement of water distribution networks in DMAs A1, A2, A3, & A4	SSEMP received and approved by PIG on August 2022 before commencement of civil works	Scan letter from PIG with approval of SSEMP is in place
CW-04/2 Replacement of water distribution network & installation of measuring devices in DMAs. Lot 2: Installation of measuring devices for DMAs A5, 6, 7, 8, 10, 10-1, 12, 13, C-9, 11, 17 & B-16; & SCADA system for DMA and KAF-1	SSEMP received and approved by PIG on September 2022 before commencement of civil works	Scan letter from PIG with approval of SSEMP is in place

6 CONCLUSIONS AND RECOMMENDATIONS

68 To ensure proper control on environment in construction area, monitoring activities were held by environmental consultant. Site visits are conducted with approximate frequency 3 times per week. International environmental consultant of PMDSC visited all sites and provided his recommendations. Impact mitigation measures and environmental protection actions were successfully implemented. To ensure health and safety measures the Contractor provided to its staffs all necessary sanitary conditions, drinking water, PPE, fire-protection means and relevant application of safety rules. Some minor non-conformances were observed regarding availability of PPE, first aid means, footbridges and fences at some of construction sites, but these issues were settled by the Contractors after warnings by environmental safeguards specialists of PMDSC and PIG.

69 Environment and safety issues arising in the reporting period and corrective actions taken are listed in Table 5. The 4 non-conformance issues have been noted in the reporting period and all of them fully resolved.

70 For the consolidation of the measures taken to eliminate deficiencies in environmental and H&S protection, management and monitoring following action plan in Table 12 below is recommended for period from January to June 2023.

Table 12: Recommended action plan for the period from January to June 2023

Issue	Required Action	Responsibility	Timing (Target Dates)
1. Provide seasonal PPE. Control wearing PPE by workers	Establish daily control system for wearing PPE	All contractors	**31 January 2023**
2. It is necessary to raise awareness of workers on environmental protection and safety issues	Conduct training on environmental and health safety for workers	PMDSC with support of PIG	**February 2023**