Solid Waste Management Improvement Project

ADB Loan No.: 3067-UZB

PROJECT MANAGEMENT, IMPLEMENTATION AND SUPERVISION CONSULTANCY SERVICES

Contract No.: SUE/Maxsustrans/QCBS-Cons_1-2016-01

Semi-annual Environmental Monitoring Report

Reporting Period: January – June 2019

CLIENT – IMPLEMENTING AGENCY
State Unitary Enterprise (SUE) "MAXSUSTRANS" (Uzbekistan)

LEAD CONSULTANT
H.P. Gauff Ingenieure GmbH & Co. KG-JBG (Germany)

in association with
Infratech Consulting SDN Ltd. (Uzbekistan)

July 2019

Semi-Annual Environmental Monitoring Report

Project No: *45366*
Reporting period: January-June 2019
ADB Loan: 3067-UZB

UZB: Solid Waste Management Improvement Project (SWMIP)

(Financed by the ADB)

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For: State Unitary Enterprise «Maxsustrans», Khokimiyat of Tashkent city and ADB

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ABBREVIATIONS

ADB	Asian Development Bank
CDP	Corporate Development Program
CSC	Construction Supervision Consultant
EA	Executing Agency
EHS	Environmental Health & Safety
EIA	Environmental Impact Assessment
EIP	Environmental Impact Permit
EMP	Environnemental Management Plan
ES	Environmental Specialist
GoU	Government of Uzbekistan
GRM	Grievance Redress Mechanism
IA	Implementing Agency
IEE	Initial Environmental Examination
LARP	Land Acquisition and Resettlement Plan
Maxsustrans	State Unitary Enterprise "Maxsustrans"
MSW	Municipal Solid Waste
PIU	Project Implementation Unit
SC	Supervision Consultant
SCEEP	State Committee of the Republic of Uzbekistan of Ecology and Environment Protection
SLF	Sanitary Landfill Facility
SPS	Safeguard Policy Statement
SSEMP	Site-specific Environmental Management Plan
SWM	Solid Waste Management
SWMIP	Solid Waste Management Improvement Project

1. INTRODUCTION

1.1. General

1. As per the Project Agreement for the L3067-UZB: Solid Waste Management Improvement Project (SWMIP), State Unitary Enterprise "MAXSUSTRANS" and Project Implementation Unit (PIU) is bound to ensure that (i) the project is constructed and operated in accordance with the national and local environmental regulations and guidelines, ADB's Environment Policy (2002) and the initial environmental examination (IEE) report; (ii) any adverse environmental impacts arising from the construction and operation of the project facilities are minimized by implementing the mitigation measures. Environmental monitoring program and other recommendations presented in the IEE report; and (iii) the implementation of the environmental management plan (EMP) and violations of safety or environmental standards, if any, be regularly reported to ADB.

2. This report is the 7-th EMR for the project and covers January - June 2019 reporting period. This Bi-annual environmental monitoring report describes the implementation of the environmental monitoring and mitigation measures recommended in the IEE reports, analyzes environmental data collected from the related sub-projects during the period of January- June 2019, and provides recommendations for the resolution of identified issues.

3. To be more specific, this environmental monitoring report covers the following areas: (i) documentation review and compliance assessment with the applicable environmental regulations, (ii) environmental management institutional structure and responsibilities, (iii) mitigation measures undertaken to minimize adverse environmental impacts arising from the construction, (iv) environmental monitoring results and analyses, and (v) conclusions and recommendations.

4. The project includes a dynamic Sanitary Landfill Facility (SLF) development concept approach. This utilizes the planned SLF as an immediate and effective solution for Tashkent's waste disposal challenges, with the potential to progressively expand the facility to become a disposal solution that can serve the Tashkent region over the long term. In comparison to the last submitted report here are no changes which has currently influent of the further developing of the SWMIP Project during the last time.

5. In addition, the project includes:

- purchase of garbage trucks for collection and transportation waste;
- procurement of special machines and mechanisms for the sanitary landfill;
- procurement of waste bins for WCPs and containers for transportation of solid waste;
- revamping of two transfer stations in the city of Tashkent;
- construction of 350 units of new collection points for solid waste and reconstruction of 350 units of existing collection points for solid waste;

6. Collection points will be equipped with functional and suitably sized waste bins, with provision for recyclable materials to be segregated and collected. Outdated collection vehicle fleets will be replaced with appropriately sized and highly efficient collection vehicles, dramatically reducing operation and maintenance costs. Transfer stations will be equipped

with improved infrastructure and electromechanical components, and the transfer vehicles will be replaced. With these activities an improvement of the environmental impact should be also expected.

1.2. Headline Information

7. The Government of Uzbekistan (GoU) has applied for a loan from the Asian Development Bank (ADB) for the development and improvement of Solid Waste Management (SWM) system of the capital city (Tashkent). The loan reference number is L3067-UZB: Solid Waste Management Improvement Project (SWMIP). The loan was signed between the Republic of Uzbekistan and Asian Development Bank (ADB) dated 27 February 2014 and Project Agreement dated 12 March 2014 signed between ADB, Tashkent City Municipality and the State Unitary Enterprise "MAXSUSTRANS".

8. The project was prepared to impact an improved urban environment and quality of life for the residents of Tashkent. The project will develop a sanitary landfill that meets international standards, rehabilitate transfer stations, and modernize the waste collection and transfer fleet. It will build capacity in waste management and help formulate a national strategy on solid waste management.

9. The Government of Uzbekistan (GOU) seriously recognizes the need to develop and implement a national Solid Waste Management (SWM) strategy The proposed Project will contribute to sustainable urban development in Uzbekistan by: (i) modernizing SWM to provide continuous and reliable municipal services; (ii) promoting financial sustainability of municipal services through tariff rationalization and prudent financial management; (iii) supporting policy and institutional reforms for improved sanitation and environmental management; (iv) mitigating climate change through a major reduction of GHG emissions, and through compliance with international standards on waste minimization and material recycling; and through all these measures; (v) improving livability of cities.

10. The volume of the existing dumpsite is exhausted and the original plan of the city was to extend its dumpsite operations to an adjacent lot of additional 30 hectares of area. Being fully aware of the inevitable environmental impacts through the extension of this practice, the city asked the national government for assistance in this matter. Based on these activities, the Cabinet of Ministers approved in summer 2012 the location of new dumpsite on 30 hectares of agricultural area for the utilization for waste management activities.

11. GOU has already decided to start processing land allocation of a 30-hectare land plot immediately to the south of the existing Akhangaran dumpsite (25 ha for Landfill and 5 ha for facilities), to develop this facility to a sanitary landfill facility, designed to internationally accepted standards of environmental protection.

12. Last option of expansion of landfill to the east, it has the potential for progressive expansion to become a 250-hectare long-term regional landfill, which can serve Tashkent's disposal needs for at least 50-years. In other words, this initial landfill actually is the first development phase of the much larger regional landfill, should this option be later selected by the city as the long-term disposal solution. Should the alternative long-term option be selected instead however, then this interim facility could be closed, or possibly could switch to serve the disposal needs of nearby communities. A conceptual design has been

completed for the interim 25-hectare facility, which is naturally included as a component of the Project.

2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project Description

13. The overall objective is to provide an improved solid waste management (SWM) system in Tashkent, the capital city, to upgrade urban infrastructure and services. The project will develop a sanitary landfill that meets international standards, rehabilitate transfer stations, and modernize the waste collection and transfer fleet. It will build capacity in waste management and help formulate a national strategy on solid waste management.

14. Given the current SWM practices, the option converting and allocating an area adjacent to the existing dumpsite to an engineered Sanitary Landfill was decided. The proposed sanitary landfill facility (SLF) concept will be based on the Best Environmental Practices (BEP) resulting to a *state-of–the-art* design consistent with international acceptable standards. This "stand alone" facility will drastically improve the SWM system (i.e. the handling and final disposal of MSW) with a possible integration capability for a long-solution to cover the entire Tashkent Oblast. The inclusion into the design of a multi-barrier system, leachate and gas collection systems will result in a significant reduction of anticipated impacts. Solid Waste Management Improvement Project (hereinafter called "Project") is to contribute to the following issues:

- Segregation of Municipal Solid Waste stream;
- Proper collection and dumping to appropriate sites
- Establishment of modern SWM systems
- Remediation of old 'truck and dump' practices in cities and regions

15. The Government of Uzbekistan has agreed for a loan from the Asian Development Bank (ADB) for the development and improvement of Solid Waste Management system of the capital city Tashkent. The Loan Agreement was signed on 27.02.2014 between the Republic of Uzbekistan and Asian Development Bank and the Project Agreement dated 12.03.2014 was signed between ADB, Tashkent City Municipality and the State Unitary Enterprise "MAXSUSTRANS". The special Decree of Uzbekistan President No.PP-2255 about the implementation of SWMIP has been issued on 31.10.2014, which specified five years project implementation period (2014-2018) and total project cost - **USD 92,25 mln.,** of which USD 69,0 mln. the loan funds from ADB and USD 23,25 mln. the contribution of SUE "Maxsustrans" and the GoU. The GoU contribution is provided as exemption of tax and customs duties in Uzbekistan for the amount of USD 5,82 mln.

16. The GoU through it Implementing Agency (IA), the State Unitary Enterprise (SUE) "MAXSUSTRANS" utilizes part of this loan proceeds towards the cost of the contract for Consulting Services related to Project Management, Implementation and Supervision, supporting the Project Implementation Unit (PIU).

17. The project was prepared to impact an improved urban environment and quality of life for the residents of Tashkent. The outcome will be improved SWM services and management in Tashkent with the following key outputs:

i. **Output 1 - Rehabilitated and expanded solid waste management (SWM) system in Tashkent**. By the project completion it is expected that (i) rehabilitation of transfer stations and possible closure of an existing transfer station 2 (ii) 3 million tons of disposal capacity established with international environmental standards, and (iii) 1,950 tons per day of disposal and operational capacity established;
ii. **Output 2 - Strengthened operational capacity**. By the project completion it is expected that (i) at least 90% of households actively segregating waste at source, (ii) campaign to raise awareness will reach 90% of households on waste segregation with women households members' participation, (iii) improved management and operations of Maxsustrans, including a 20% improvement (reduction) in cost per ton of waste disposal, and (iv) an IT-supported MSW collection system based on a geographic information system (GIS) database is implemented and 80% of trips monitored by the system is achieved.; and
iii. **Output 3 - National SWM strategy**. By 2016, a draft national SWM strategy prepared and submitted to the Government and ADB.

18. There are two executing agencies (EAs) for the project – the Tashkent Municipality (Hokimiyat of Tashkent city) for the overall oversight and monitoring of Outputs 1 and 2 and State Committee of the Republic of Uzbekistan of Ecology and Environment Protection (SCEEP)[1] for execution of Output 3–the national SWM strategy. Outputs 1 and 2 will be implemented by State Unitary Enterprise "MAXSUSTRANS". A PIU was established within MAXSUSTRANS to support project implementation. This support will include project management, financial management, procurement, contract administration, safeguards implementation, construction and technical supervision, and monitoring and evaluation.

2.2. Project Site Description

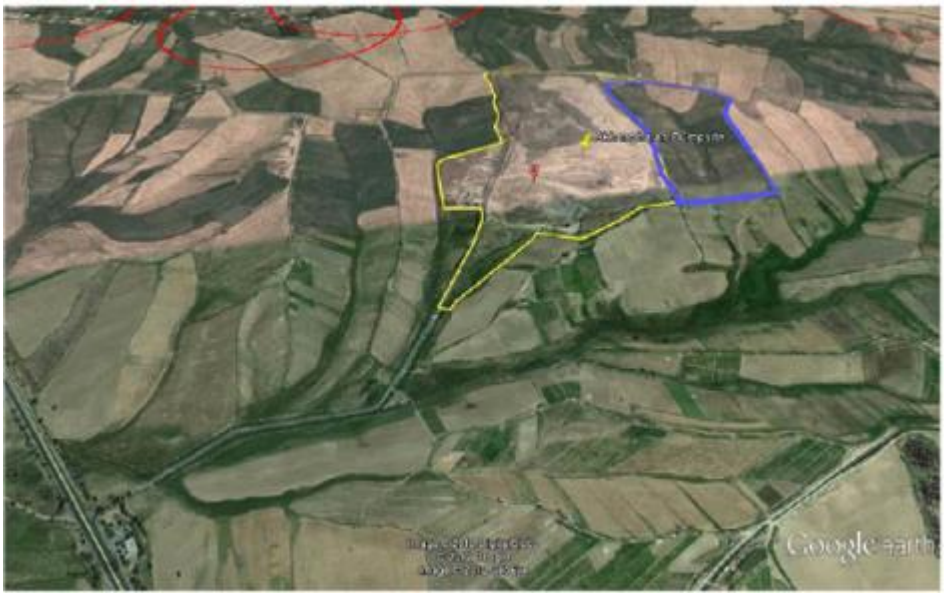
19. The Akhangaran landfill is located approximately 35 km south of the center of Tashkent City in the Akhangaran district of Tashkent Province. The facility has been in use since 1967 and is currently handling the wastes collected from Tashkent city and partial from Chirchik. The proposed site for a modern Sanitary Landfill is located at the eastern side of the existing Akhangaran Landfill. The total area for Landfill will cover approximately 25 hectares of previous agricultural land. Location map of Akhangaran landfill is given on **Figure 1** below.

[1] Acc. to the President Decree #UP 5024 from 21.04.2017 the State Committee of Uzbekistan for Nature Protection was renamed into the State Committee of the Republic of Uzbekistan of Ecology and Environment Protection (SCEEP)

Figure 1. Location map of Akhangaran landfill

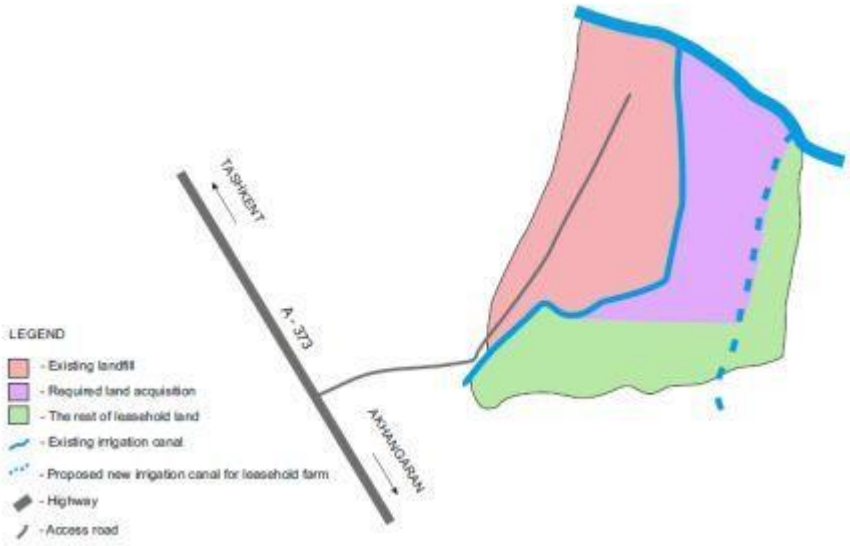
20. Access to the site: Land acquisition for the expansion of existing landfill will not require construction of any additional access road to the site. This is visualized below on given image (**Figure 2** below). Access to land will be through already functioning road. Existing access and other bypass roads should be taken in consideration for repair- and reconstructions works. Buffer zone for the SLF will be within the acquired land plots.

Figure 2. Proposed Akhangaran landfill expansion



* Yellow line is border of existing landfill; blue line is border of expansion

Figure 3. Map of acquired land plot and irrigation canal



21. The current situation on project implementation on land issues and compensation is the following:

- The land plot of 30 ha required for the project implementation was allocated to SUE Maxsustrans according to the Decree of Khokimiyat of Akhangaran district #1536 dated August 25, 2018[2].
- The required land plot is now considered as construction site. In August 2018 the owner of leasehold farm, affected by the project under the LARP 2012, applied to the local authorities to return his leasehold land plot to reserve land fund of khokimiyat. The owner of the farm has stopped his farming activity at this plot.[3]

22. According to the mentioned Decree of Khokimiyat, SUE Maxsustrans shall:

i. obtain the proper documents from local Architectural and Construction authority prior to start any design works for construction or rehabilitation on the new land;
ii. pay agriculture production losses arisen from this land area;[4]
iii. ensure keeping the working conditions of the existing irrigation, melioration and engineering infrastructures located in the neighboring farmer and agricultural areas;
iv. upon using of this land, do re-cultivation and hand over to the local land authority.
v. be aware that the allocated land shall be used within three years upon issuing this decree.

23. At present, the project implementation is on the stage of registration the documents on the land plot transferred to Maxsustrans for construction. The issues of registration of the documents shall be carried out by the specialists of cadaster department of khokimiyat of the district / region.

2.3. Project Contracts and Management

24. The project is being administered by the Project Implementation Unit (PIU), which is represented by the Project Director, PIU has hired "China Urban Construction Design & Research Institute Co., Ltd." (CUCD), for Sanitary Landfill Design and construction supervision of the civil works.

25. PIU Consultants (H.P. Gauff Ingenieure GmbH & Co. KG and his JV-Partner Infratech Consulting SDN Ltd (Tashkent) supporting the PIU according to the contract and its Amendment No.2.

26. PIU Consultants has National Environmental Expert – Mr. Sergey Karandayev, who implementing environmental safeguards services. He is personnel in charge of environment

[2] This decree became possible upon the Decree of the President of the Republic of Uzbekistan #PP-3874 dated 19.07.2018 "About additional measures on acceleration of implementation of investment and infrastructure projects in 2018-2019".

[3] On August 14, 2018, the owner of the land plot of 30 ha ("Shahboz Nuri Ziyo») has applied to the khokimiyat of Akhangaran district and asked to accept his leasehold land plot to the reserve fund of khokimiyat. The khokimiyat of Akhangaran district issued the Decree # 1494 dated August 14, 2018 and accepted the land plot to reserve fund of lands of khokimiyat.

[4] Compensation for the agricultural losses shall be paid to the local budget of the khokimiyat of Akhangaran district.

affairs. He is responsible for arranging on-field monitoring activities, providing inputs to this quarterly monitoring reports and making sure the protection measures are implemented accordingly.

27. The commencement means full mobilization and start with the work according to the ToR of consultants began from 14 December 2018. This consulting company will do design works of closing old landfill and establishing of new sanitary landfill. During the construction work they will supervise all construction works related to Landfill establishment.

28. The CUCD is responsible to serve as the "Engineer" within the context of the Conditions of Contract (COC) and are required to nominate Resident Engineer and other staff for the contract that are full-time resident in the area or located in the proximity of project area. Site Duties have been designated to the Resident Engineers as the "representative of the Engineer".

29. The Team Leader reports directly to the Project Director (Client's representative). The CUCD are working under the overall guidance, coordination and directions of the Project Director. Resident Engineers are coordinating with the Team. CUCD staff including the Team Leader, Office Managers and Resident Engineers mobilized during the month of December 2018 and January 2019. The balance staff of CUCD was mobilized progressively to the site.

30. The CUCD is also responsible to monitor the Environmental, Resettlement, and other social Safeguard issues of the Contract along with monitoring the Gender issues and for alleviation of grievances.

31. Main organizations involved in the project and related to environmental safeguards are presented in the **Table 1** below:

Table 1: **List of contracts under the Project**

Organization	Name of main staff and Environmental Specialist	Contact data (including phone and web-site) and address of the organization	Employer	Contract Signature date	Contract Final Date
PIU Support Consultant – JV "H.P. Gauff Ingenieure GmbH & Co. KG-JBG and Infratech Consulting SDN Ltd."	Mr. Ingo Schoebe, Team Leader Mr. Dilshod Mavlyan-Kariev, Deputy Team Leader Mr. Sergey Karandaev, Environmental Specialist	pbox-swmip.uzb@gauff.com eng-invest@consultant.com eng-invest@consultant.com	SUE "Maxsustrans"	11.01.2017	30.06.2019
Sanitary Landfill Design and Supervision Consultant -China Urban Construction Design & Research Institute Co., Ltd."	Mrs. Yuwei Xue, Authorized representative Mr. Mingtao Nie Environmental Specialist	cucdconsulting@163.com hipmo@163.com	SUE "Maxsustrans"	16.11. 2018	December, 2020

Organization	Name of main staff and Environmental Specialist	Contact data (including phone and web-site) and address of the organization	Employer	Contract Signature date	Contract Final Date
Capacity Development Program Consultant - JV "GWCC-INTERIVAL-UVP-Dohwa-Al Mar"	Mr. Thomas Derntl, Team Leader Mr. Thiemo Fellner, Deputy Team Leader Julia Alekseeva, Environmental Specialist	thomas.derntl@gwcc.at thiemo.fellner@interival.at alekseeva@almarconsulting.org	SUE "Maxsustrans"	12.09.2017	15.10.2019

32. The role of each agency in the project is presented in the Table 2.

Table 2: Role of Agencies towards EMP Implementation

Agency	Role
Project Implementation Unit (PIU)	• Holds Overall responsibility with regard to EMP Implementation • Reporting to various stakeholders (ADB, Regulatory bodies) on status of EMP Implementation • Coordinating with Environmental Experts (PIU Support Consultant, Contractors and External Monitors) • Responsible for obtaining Regulatory Clearances • Review of the progress made by Contractors • Ensure the BoQ items mentioned in EMP are executed as per contract provision
PIU - Support Consultant	• Assisting PIU in overall implementation of EMP • Review of periodic reports on EMP implementation and advising PIU in taking corrective measures • Conducting periodic field inspection of EMP implementation • Assisting PIU and reporting to various stakeholders (ADB, Regulatory bodies) on status of EMP implementation • Conduct environmental training for field officers and engineers of contractor
Contractor	• Responsible for ensuring the implementation of EMP as per provision in the document • Discussing various environmental / social issues and environmental / social mitigation, enhancement and monitoring actions with all concerned directly or indirectly • To ensure environmentally sound and safe construction practices • Conducting periodic environmental and safety training for contractor's engineer, supervisors and workers • Sensitization on social issues that may be arising during the construction stage of the project • Conduct environmental monitoring and control activities including pollution monitoring, safety; and • Preparing and submitting monthly reports to PIU on status of implementation of safeguard measures

33. The working environment among SWMIP and Contractor has remained sound during this reporting period. There is regular daily and weekly coordination meeting between PIU and the Contractor, and issue-based meetings are held among all parties in PIU office and China Urban Construction Design & Research Institute Co., Ltd. (CUCD) Office.

2.4. Project Activities During Current Reporting Period

34. The proposed project was estimated to cost $92.25 million, including taxes and duties, physical and price contingencies and interest charges during implementation. Brief details are shown in the below table and project cost estimates.

Table 3: Brief details about project costs

Source of Financing	Total (million USD)	%
Asian Development Bank Financing		
Loan 3067-UZB (Ordinary Capital Resources)	69.00	90.79%
Governmental Financing		
Government of Uzbekistan (GoU)	7.00	9.21%
Total	**76.00**	**100%**

35. To be mentioned that to the Commencement Date of the Consultant the IA has arranged the following procurement packages:

1) Containers for collection of SDW at WCP (Package G-3)
(SUE /Maxsustrans/CB-G_3-2016-02)& (SUE /Maxsustrans/DC-G_4-2017)
36. It's done package procured.

2) Construction/reconstruction of new waste collection points (Package CW-5)
(SUE /Maxsustrans/CB-W5)
37. It's done package procured.

3) Waste Collection & Transfer Trucks (Package G-2)
(SUE /Maxsustrans/CB-G2-2016-02)
38. It's done package procured.

4) Consultant for support of PIU in project implementation (Package C-1)
(SUE /Maxsustrans/QCBS-C1-2016-01)

39. The contract is concluded between SUE "Maxsustrans" and JV "H.P. Gauff Ingenieure GmbH & Co. KG-JBG" (Germany) and LLC "Infratech Consulting SDN" (Uzbekistan). The Consultant has started the activity since 01.08.2017 and continues the activity. Current date of the contract termination – June 30, 2019. It is foreseen to extend the contract due to still ongoing or not started Packages to extend the Contract Time until 31.12.2020 .

1) Consultant for support of capacity of SUE "Maxsustrans" and development of National Strategy for Solid Waste Management of the Republic of Uzbekistan
(SUE/Maxsustrans/QCBS-C3)

40. For the present, the contract is signed with JV "GWCC-INTERIVAL ZT GmbH" (Austria), UVP Environmental Management and Engineering GmbH (Austria), Dohwa Engineering Co., Ltd. (Korea) and LLC "Al Mar Consulting" (Uzbekistan). The Consultant has started the activity since 15.02.2018 and continues the activity. Current date of the contract termination – October 15, 2019. The National Strategy of the Republic of Uzbekistan for SW management was approved by the President of RUz first input is visible depend of new package rules as introduction of the prohibition of the use of certain plastic articles and packaging.

2) Consultant for designing and construction supervision of new landfill and closure of old landfill
(SUE/Maxsustrans/QCBS-C2)

41. The Contract has been signed on 16.11.2018. The commencement date was 14.12.2019 when the Company China Urban Construction& Research Institute Co. Ltd. has started their work.

42. Based on the requirements of TOR and stakeholder consultation, the assignment aims at developing detailed design and supervision of civil works of the new 30 ha sanitary landfill and closure of old dumpsite in Akhangaran district of Tashkent province. The design and supervision will be conducted in two separate phases with design phase of 6 months and supervision phase of 18 months.

43. To date the work / design is ongoing.

22-24.10.2018	Contract negotiations
16.11.2018	Signed consulting services contract with Maxsustrans
20.11.2018	Topographic mapping started
06.12.2018	Topographic map (first draft) received
14.12.2018	CUCD team mobilized in Tashkent
28.12.2018	Kick-off meeting held in Maxsustrans
03.01.2019	CUCD sent request for Client's facilitation in obtaining the Architectural and Planning Order
03.01.2019	CUCD sent request for Client's confirmation on entrance road
24.01.2019	CUCD received Client's confirmation on entrance road
31.01.2019	CUCD sent request for using provisional sums and contingency
14.02.2019	CUCD received Architectural and Planning Order from PIU
18.02.2019	CUCD design team started working on site
19.02.2019	Got oral information from deputy director of Maxsustrans about local regulation for tendering survey services
21-28.02.2019	TMM-ARX released advertisement for survey services
01.03.2019	Bidding evaluation report submitted to Client
6-8.03.2019	Negotiation of sub-contracts with survey companies
11.03. 2019	TMM signed sub-contracts with survey companies. Geological surveys started after signing the contract

23.04.2019	TMM submitted geological survey report for new landfill in Russian. The geological survey for dumpsite has been finished.
24.04.2019	CUCD met geological survey company and hydrological survey company. The hydrological survey points were determined and the company will start survey as soon as weather gets dry. CUCD gave comments on the geological survey report for new landfill and the company will revise their report accordingly.
20.05.2019	CUCD team meeting with the PIU environmental specialist to discuss environment aspects/public consultation plan/GRM. Drafting IEE /Revising EMP
28.05.2019	Social Safe Guard and Environmental Expert have been visited together with CUCD team and ADB Representative the existing and the new landfill site

2.5. Description of Any Changes to Project Design

44. CUCD suggest to build a leached well with a PS instead of free gravity flow as it was agreed under Appendix A of the Contract.
45. These suggestion will allow the employer to increase the storage capacity and the life time of the new landfill.

2.6. Description of Any Changes to Agreed Construction methods

46. Not applicable.

3. ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1. General Description of Environmental Safeguard Activities

47. IEE for project was prepared for SUE Maxsustrans in May 2013 and it was published on ADB's website.

48. The IEE report covers the general environmental profile of the project and includes an overview of the potential environmental impacts and their magnitude on physical, ecological, economic, and social and cultural resources within the subproject's influence area during design, construction, and operation stages. Additionally, National Environmental Expert has reviewed this Environmental Management Plan (EMP) as part of this report (**Annex 1**). The level of details and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

49. Specific Tasks for the Sanitary Landfill Design and Supervision Consultant, according to Contract No. SUE/Maxsustrans/QCBS-Cons_2 will be:

Phase I – Detailed Engineering Design

i. Obtaining an Architectural and Planning Order by assistance of the SUE "Maxsustrans";
ii. For both the new SLF and the old dumpsite, carrying out geological surveys and investigations necessary for the design;
iii. Development of detailed drawings and design documentation for construction of new SLF and closure of dumpsite in accordance with international and national standards;
iv. Assistance to the Client in preparation of the ADB standard bidding documents for a Civil Works Contract, if required;
v. Preparation of initial environmental and social safeguards reports.

Phase II – Supervision of Construction Works

i. Performing design compliancy supervision during the construction works on establishment of new SLF and closure of the existing dumpsite;
ii. Construction monitoring support on safety, quality, environment and reporting accordance with domestic regulations and ADB requirements;
iii. Environmental and social safeguard monitoring, reporting and public consultation and campaigns.

3.2 Site Audits

50. The PIU Consultants conducted inspection of the Project sites with environmental relevance during reporting period on 28 May, 2019.

Discussion of design decisions with Sanitary Landfill Design and Supervision Consultant

Access road to Akhangaran Landfill

51. The environmental safeguard consultant, NIE Mingtao of CUCD, was fielded in Tashkent through 17-27 May 2019. The main purpose of this field work is to prepare the initial environmental examination (IEE). The environmental safeguard consultant visited the project sites; attended various meetings with the project proponents (Maxsustrans and Waste Disposal and Utilization), CUCD team's project management and design staffs, local design/geological/hydraulic survey institutes (TMM and its subcontractors), PIU consultant (Gauff) and the capacity building consultant environmental specialist; and prepared relevant documents. The following summarize the main findings and recommendations during this field work.
52. Key findings
    - **Main observations at site visit.** The current Akhangaran dump site was not well managed and maintained, ie, obvious fire/smoke posed health and safety threats to the dumpsite operational staff/waste pickers. One of the main reason is that no heavy landfill equipment for compaction and proper leveling and storing is available. Mostly all previous equipment are damaged. The natural terrain of new landfill looked fit for landfill siting, where without planting crop was observed. Some sections of the irrigation channels located in the east of the old dumpsite seemed being damaged with leakage risk to pollute surrounding wheat farmland.

As associated facilities to CUCD work scope, generally the waste collection points were managed well, however, Yunusobod transfer station lacked of dust/odor/leachate mitigation facilities and basic personal protection equipment (PEE) such as mask in place.

- **ToR scoping**. The ToR between the client (Maxsustrans) and CUCD requires *to conduct an Initial Environmental Evaluation (IEE), an Environmental Impact Assessment (EIA), an Environmental Management Plan (EMP) and …. The Consultant should submit an EIA for review and approval by SCENP and receive a positive opinion.* However, the whole project including the proposed landfill and closure of dumpsite is classified as category B according to ADB SPS (2009), as such, only IEE and EMP are applicable, whilst EIA is not relevant to this project in terms of ADB's requirements.
- **Domestic EIA of the whole ADB project.** Domestic EIA approval should be sought prior to construction commences according to UZB's national requirements. The loan agreement also stipulates that "*The Borrower shall ensure that Maxsustrans shall not award any Works contract which involves environmental impacts until: (i) SCNP has issued a statement of ecological expertise; and (ii)…*' Although during this field work, CUCD received a copy of the domestic EIA dated 2013, it is still unclear whether the domestic EIA has been approved by the authority or not.
- **Baseline data arrangement.** Through discussions with various parties, underground/surface water quality will be provided by TMM's hydrological survey subcontractor; and brief soil chemical composition analysis by TMM's geological survey subcontractor.
- **Information disclosure arrangement.** Based on CUCD's suggestion, Maxsustrans principally supported to disclose the brief introduction of IEE upon it is finished through Maxsustrans/government website.
- **Public consultation arrangement.** CUCD including the environmental safeguard consultant discussed with Maxsustrans the public consultation arrangement on basis of initial stakeholder analysis. Based on Maxsustrans' requirement, CUCD submitted a formal request in that such public consultation by foreigners should be approved by the Regional Municipal Government in advance. And
- **International standard landfill and closure of dumpsite.** The environmental safeguard consultant preliminarily discussed with the CUCD design staff and prepared tables to compare with generally accepted international standards for environmental, health and safety (EHS) and landfill design.

53. During the inception stage, CUCD project team visited project site and talked with relevant stakeholders. CUCD identified the following key issues in this inception stage:

1) By year 2014 when the TOR was prepared, the waste disposal at the current dumpsite every day was 1600 tons and the 30 ha new landfill was expected to be used for 15 years. However, according to information CUCD got during site visits, the current waste amount transported to the dumpsite every day is 1700 tons. Based on calculations and assumptions, the current 30 ha new landfill has a service life of 8.5 years only. Even if the amount of garbage remains the same with the one in TOR, 1700t/d, the service life is still less than 11 years. According to the Resolution of the

President of the Republic of Uzbekistan # ПП-4291 dated 04/17/2019 On approval of the strategy by handling domestic waste in the Republic of Uzbekistan for the period 2019-2028, until 2023 the recycling rate should be 60 % of the recyclable solid waste. And It means only 1190 ton/day solid waste will arrive from Tashkent.

2) There is a lack of statistic data on the solid waste transported to the landfill, such as generation, composition, water content, etc. This makes it harder to estimate amount of leachate, gas generation, etc.
3) During the inception stage, CUCD got to know that a Japanese Company "Shimizu" has been collecting landfill gas from 25% area of the dumpsite since 10 years ago and treated it by burning. For the closure design of dumpsite, it is essential to get detailed information on their gas collection wells.
4) During the kick-off mission 28.12.2018, we also got to know that a Korean company «Sejin G&E Co.,Ltd» will take over the old dumpsite and conduct biogas collection and utilization activities. CUCD also got to know that the company would like to start their construction of wells as soon as possible. It is crucial to communicate with the company and should let them know that they must follow the design of our dumpsite closure project to install their wells and pipes for gas collection.
5) The requirement of designing compost plant in the landfill was not clearly described in the TOR. The compost plant was only mentioned in the team leader's task and in the table for outputs and deliverables. There is no expert position specifically for composting process design. As mentioned before, the capacity of the new sanitary landfill is not enough for 15 years' use. If the Client insists to build a compost plant, the capacity of the landfill will be reduced, due to reduction of available area, correspondingly and thus shorten the service life of landfill.
6) If the Maxsustrans can find a other place for composting the life time of the new landfill can be increased. Sure figures can't be given due to missing statistical data.

54. Visual observations and photographs were obtained during the field visit. Key findings were discussed with the concerned engineering staff.

55. In general, it was concluded that the project construction activities will not caused any significant and irreversible environmental impacts during construction. Wherever environmental issues would observed during the visits by the CUCD Consultant, they will be brought to the notice of the PIU for ensuring implementation of necessary corrective measures by the Contractor.

3.2.1 ADB Missions

56. ADB mission took place from 18-28 January 2019. A mission visited Uzbekistan between 18-28 January 2019 to undertake: (i) a loan review mission for L3067-UZB, and (ii) a reconnaissance mission for the proposed Uzbekistan Solid Waste Development Project. The mission held discussion with (i) the State Committee for Investments, (ii) the State Committee on Ecology and Environmental Protection (SCEEP), (iii) the Ministry of Finance. (iv) the Tashkent City Municipality, (v) the SUE Maxsustrans, and (vi) the Agency Francaise de Development.

57. The mission's objectives for L3067-UZB were to (i) review the implementation status of the project, (ii) discuss the progress of draft SWM strategy, and (iii) award the contract for the design and supervision consultant. The mission's objective for the proposed Uzbekistan

Solid Waste Development Project was to hold consultations with the government and agree on (i) the scope of the proposed project, (ii) the possible financing plan, and (iii) the proposed project-processing schedule.

58. A second mission took place from 21.05 until 1.06.2019. Akhangaran has been visited with the Env. Specialist of CUCD and on 28.05. with Mrs. Feruza Insavalieva from ADB again.

59. Internal debriefing project progress was conducted on 20 May, 2019 between Env. Specialist of CUCD and PIU Consultants – Team Leader and Environmental consultant. It was discussed highlighting domestic EIA / baseline environment / EIA modelling and quantitative prediction /law enforcement environment/ information disclosure and public consultation/GRM/institutional arrangement on project EHS management.

3.2.2 Issues Tracking (Based on Non-Conformance Notices)

60. Not yet applicable.

3.2.3 Trends

61. Not yet applicable.

3.2.4 Unanticipated Environmental Impacts or Risks

62. Not yet applicable.

4. RESULTS OF ENVIRONMENTAL MONITORING

4.1. Overview of Monitoring Conducted during Current Period

63. Initial Environmental Examination (IEE) report designed for all phases (design, construction and operation) for SWMIP was prepared in 2013. However, this 'Environmental Monitoring Report' covers only the design phase impact monitoring, as there is no any construction activity.

64. Current Situation: No significant environmental issue were flagged and no complaints received from the local residents and no adverse impacts occurred as a result of no construction activities during the reporting period.

65. Within the reporting period, Team Leader and Local Environment Specialist of PIU Support Consultant, International Environment Specialist of the Sanitary Landfill Design and Supervision Consultant have inspected the Akhangaran landfill. During the inspection, overall methodology to assess and monitor EMP implementation for future construction activity was conducted. Several on-going works were reviewed and meetings to validate environmental performances by International Environment Specialist.

66. Most of the environmental monitoring requirements are for the construction period of project site. At the construction stage, the SWMIP site engineer is responsible for the preparation and submission of monthly environmental supervision reports. Meanwhile, the PIU is responsible for the monitoring of environmental parameters and preparing environmental results reports. The Environmental Expert of PIU is responsible for compiling the Bi-annual environmental monitoring reports.

67. Monitoring and reporting of the project will be conducted prior to construction, during construction, and during operation. The PIU shall monitor the performance and implementation of the EMPs. Monitoring reports on the performance and in implementing the EMPs, shall be prepared prior to construction (detailed engineering design and procurement stages), during construction and during project operation, as follows: i) monthly progress reports; and ii) quarterly monitoring reports to be submitted to ADB. The monitoring report/s shall also document the relevant environmental aspect and its respective mitigation measure, as well as grievances received and resolved, if any.

68. Prior to commencement of any construction work, contractors has to submit an EMP and compliance report to PIU ensuring that all identified impacts detailed in the environmental assessment have been undertaken. The PIU will review reports submitted by CC as soon as construction works commence.

69. The PIU supposed to organize an induction training to discuss the submitted CEMP including environmental monitoring requirements and reporting of unexpected adverse impacts or impractical mitigating measures observed during the construction phase

70. Based on monthly reports and measurements, the PIU will draft quarterly EMP implementation report which will include (i) construction activities over the last 3 months; (ii)

reporting on EMP implementation; (iii) sampling results (iv) findings on the compliance status; (v) summary of any non-compliance and remedial actions taken; and (vi) recommendations for improvement, revision of the mitigation measures and/ or the EMP if any. The safeguard specialist of the PIU will review the draft EMP implementation report which upon approval by the Project Director will be submitted to ADB. Depending on findings, future modifications in the EMP could be undertaken with the concurrence of the ADB. These will be generally undertaken, if required, upon review of the EMP progress reports submitted by the PIU to ADB for review and further action.

71. The IEE goal was to maximize the use of available secondary data (without baseline instrumental measurements) in the understanding of the present condition of the project site. It should be noted that secondary information made available by pertinent governmental agencies and secondary literature was maximized to establish the baseline for the site. IEE described the baseline environmental conditions, including physical, ecological and socio-economic resources in project site, assesses environmental impacts of the intended project activity, and provides remedial/mitigation measures. The baseline parameters would be established prior to construction for monitoring the situations of environment affected during construction. The baseline measurements will become the conditions against which any changes due to project effects will be measured. All data must be collected so that their source can be traced by anyone who picks up the document.

72. Instrumental monitoring of quality of environment during this reporting period was not conducted since construction activities have not been yet commenced. According to Environmental Management Plan and Environmental Monitoring Plan the Contractor would be responsible for conduction monitoring of the following parameters indicated in the **Table 4** below with defined frequency and responsible organizations.

Table 4. Environmental Monitoring Plan during the Construction

Environmental Components	Parameters	Frequency	Responsible Party	Station/ Location
Air Quality	• Nitrogen Dioxide (NO2), VOCs	• Quarterly	Contractor / PIU to monitor for compliance and reporting to IA /SCEEP	• On the identified point sources within the premises of the SLF and the old dumpsite
	• Particulates - PM10 and PM2. Nitrogen Dioxide (NO2), Sulfur Oxides (SOx)	• Bi –annually		• Within the project site including areas at old dumpsite
	• Noise / Objectionable Odor	• Quarterly / Monthly		• Within and outside the SLF (1-2 Km North-West and West-North-West end)
Groundwater / Leachate Contamination	• pH • Conductivity • DO • BOD5 • TDS • H^+	Quarterly	Contractor / PIU to monitor for compliance and reporting to IA / SCEEP	• Ground Water Monitoring Wells (whenever installed – see discussion) • Leachate Collection and Pump shafts

	• SO_4^{2-} • NO_2 • NO_3 • NH_4 • hydrocarbons • Salinity • Total Hardness • Alkalinity • Carbonates • Oil and Grease • Trace Metals • Coli form • Microorganism			
Residual Wastes	• Volume / quality • Characterization of wastes / Type • Efficiency of storage facilities	Annually Quarterly	Contractor / PIU to monitor for compliance and reporting to IA / SCEEP	Within the SLF
Solid Waste / Construction Waste- during construction time	• Characterization of wastes / Type • Storage place	Quarterly	Contractor to monitor for compliance and reporting to IA / SCEEP	During the construction time
Noise generation		Monthly	Contractor / PIU to monitor for compliance and reporting to IA / SCEEP	At the construction site and near the sensitive receptors
The monitoring plan does not claim to be complete and can be expanded at any time according to the need and necessity.				

73. During the reporting period, it was done an assessment to the water analysis from a well 1,8 km fare from the old dump (Annex 2). The results are within the norms.

4.2. Trends

74. Not yet applicable.

4.3. Summary of Monitoring Outcomes

75. Not yet applicable.

4.4. Material Resources Utilisation

76. Not yet applicable.

4.5. Waste Management

77. Not yet applicable.

4.6. Health and Safety

78. Not yet applicable.

4.7. Training

79. During the reporting period, external training courses on environmental issues have not been conducted.

5. FUNCTIONING OF THE SEMP

5.1. SEMP Review

80. The assessment of compliance with the Environment Management Plan (EMP) commenced with the review of the environmental management conditions required for compliance during the construction stage of the project. These conditions are meant to be captured in the Specific Environmental Management plan (SEMP). In adding to previous explanation following items should be also taken in consideration by the upcoming monitoring.

81. The SEMP is likely to have a requirement that detailed management plans are developed on a topic by topic basis (Waste Management Plans; Traffic Management Plans; Water Management Plans and etc.) Beside environmental management actions, SEMP defined what kind of mitigation measures have to be implemented by Contractor/Sub-contractor and how to conduct environmental monitoring during the construction work. SEMP defined place, time, parameters and responsibility of environmental monitoring. Sub-clauses of SEMP also included Contractor's schedule of submitting reports to Engineer and EA.

82. These plans are detailed and set out how the project will address potential issues identified in the impact assessment process and ensure that specific mitigation and monitoring measures are fully implemented.

83. Where the impact assessment process has identified areas within the project which are particularly valuable or sensitive to possible change due to the project development, then it may be appropriate to develop an environmental management plan which will be focused on all activities which will take place in this location.

84. The basis of a Site Specific EMP (SSEMP) will the contractors developed Construction Method Statements. As part of the Construction Method Statements the contractor will, with the support of the ES and PIU, and using the EIA/IEE and EMP as a starting point, conduct an Environmental, Health and Safety Risk Assessment for the proposed activities within the sensitive area.

85. The outcomes of the risk assessments, along with any existing mitigation or monitoring requirements set out in the EMP will be developed into the Site Specific EMP.

86. Within the above plans there will also be an Environmental Monitoring Plan. This sets out the requirements for visual or physical measurements of environmental conditions prior to, during and post construction. As noted in the Introduction, this physical monitoring is a related subset of the process, which ensures that the ADB's environmental safeguard requirements are being met through the full implementation of the approved EMP. This physical form of monitoring should not be confused with the monitoring, perhaps better referred to an audit, that takes place to ensure that the EMP is being fully implemented.

Work Arrangement for CUCD

Design Phase

- Site visits, understanding of environmental conditions and resettlement and social activities of project site.

- Prepare IEE, EIA, EMP, RP, SIA and SAP for approval by ADB

Supervision Phase

- Assist the Client to recruit an environmental monitoring agency to carry out monitoring activities during construction phase.

- Based on approved EMP, guide and assist the environmental monitoring agency to carry out environmental monitoring and form quarterly environmental monitoring reports for submission to ADB.

- Based on approved RP and SAP, assist the Client to carry out resettlement investigation and social activity surveys, collecting data to form social safeguard reports for submission to ADB and organize social activities during construction.

6. GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

6.1. Good Practice

87. Not yet applicable.

6.2. Opportunities for Improvement

88. Not yet applicable.

7. SUMMARY AND RECOMMENDATIONS

7.1. Summary

89. In order to start the design of new landfill, it is crucial to obtain the updated Cadaster with updated coordinates of the land allocated for the new landfill (30 ha). The available Cadaster dated from 2015 shall be updated taking into the latest Decree of the Akhangaran District Mayor from August 2018. The coordinates on our topographic survey map and design drawings need to be the same with the ones on the Cadaster in order to get the final drawings approved by the local authority. Based on the contractual Terms of Reference, the first task before detailed engineering design is "obtaining an Architectural and Planning Order (the Russian abbreviation "APZ") by assistance of the SUE Maxsustrans, incl. technical pre-conditions and permits for the intended civil works in selected area". Without these, detailed engineering design cannot be started. Therefore, we requested Maxsustrans' facilitation in obtaining the APZ as soon as possible.

90. The Client SUE Maxsustrans has agreed to take immediate actions to obtain the APZ and the updated Cadaster.

91. CUCD needs to know the waste composition and water content to estimate gas generation and leachate amount. CUCD should more cooperate with GWCC and the Waste Transfer and Valorisation Company as the Client has suggested and requested different times to get the current data on these if they are available for their implementation into the project. This statistical data is crucial also for developing the solid waste management strategy and planning. We suggest that a research on the two subjects should be done on site.

92. About designing of compost plant, the Client needs to decide after considerations. Due to the conditions that not sufficient land is allocated to new SLF and insufficient construction investment budget, if there is no utilization channel of composting products, CUCD suggest not to design and build compost plant. If the Client insist on building the plant, CUCD suggest to add corresponding expert to complete the design properly.

93. As soon as construction works commence (app Q4 2019), environmental monitoring will be conducted.

94. Action plan for the reporting period from July-December 2019:

#	Action	Time frame	Responsibility
1.	Safeguard Compliance and Monitoring Report	Q1, 2020	PIU Consultants National Social Safeguards and Development Specialist
2.	Sanitary Landfill Facility Establishment and Dumpsite Closure - Design and Supervision	Q4, 2019	CUCD Consultant
3	Procurement of Landfill Equipment - Equipment Commissioning	Q1, 2020	PIU

4	SUE Maxsustrans – Capacity Development Program Consultants will be hired	Q1, 2020	PIU
5	Construction Consultant selection procedures	Q3, 2019	PIU
6.	Collect and provide the relevant information on environmental indicators to PIU.	Q1, 2018	PIU Consultants National Social Safeguards and Development Specialist
7.	Other routine issues like unscheduled site visits, follow up of the detected defects, environmental assessment of designs.	Upon the need	PIU Consultants National Social Safeguards and Development Specialist
8.	Reporting on environmental safeguards	Monthly Bi-annual	PIU Consultants National Social Safeguards and Development Specialist

95. Specific Environmental Management Plan (SEMP) for the project will be prepared by Environmental Specialist of construction company before commencement of the civil works.

96. The preparation of the quarterly environmental reports will be continued but all items / paragraphs, which haven't changed or developed will not repeated as in the Bi-Annual Report.

97. The Environmental Monitoring Reports upon review and approval by ADB will be posted on the Maxsustrans website and disclosed on ADB web-site as before.

98. The next EMR (reflecting July-December 2019 reporting period) will be submitted to the Client/ADB in January 2020.

ANNEXES

Annex 1: Environmental Management Plan (as before)

Sources of Impact	Impacts	Type / Degree of Effect	Mitigation / Enhancement Measures	Institutional Responsibilities	Cost
I. Pre-Construction Phase					
Land Acquisition	Loss of Agricultural Land	Significant and Long Term	• Proper appraisal and timely compensation as defined in the LARP. Not anymore necessary The landlord gives it back to the state for free • Ensure that irrigation to affected plot/s aside from the allocated area remains unimpeded. • Select optimal location of facilities, access routes and construction sites to minimize temporary or permanent use of land • Ensure clear delineation and fencing of landfill area	PIU for implementation and monitoring	Included in project Cost
Environmental and Social Appraisal and Management	Organizational capacity and commitment	Temporary and short term	• Establish and maintain Environmental, Social and Health & Safety Management System (ESHS). Employ EHS management staff with the Company.	CUCD	Own resources, Consultant remuneration
Occupational Health and Safety	PPE provision	Temporary and short term	• Carry out and keep updated OHS risk assessment of work places prepared by authorized consultant • Provide PPE for the staff of Company and include in tender documents the requirement for all contractors including the municipal waste collection company to provide adequate PPE according to OHS assessment of workplaces and the local regulations.	PIU, CUCD	Own resources, Consultant remuneration

II. Construction Phase					
Land clearing	Generation of fugitive dusts	Temporary but long term	• Open only one area for development on a by phase basis as planned. • Minimize movement of vehicles inside the construction area • Cover exposed areas with tarps or similar materials / application of slope stabilization materials • Establish buffer zones and fences	Contractor/ CUCD to monitor for compliance and reporting to IA / SCEEP (State Committee on Ecology and Environmental Protection	Include such measure in the Contractor's TOR
	Noise generation	Temporary and short term	• Notify the affected communities, adequately in advance, about the expected nuisance. • Reduce project traffic routing through community areas wherever possible. • Install mufflers and silencers for machines and equipment • Avoid working during rest periods / night time • Regularly maintain equipment • Establish fences around the work area as barrier • Impose minimum speed limits within the project site	Contractor / CUCD to monitor for compliance and reporting to IA / SCEEP	Include such costs in the Contractor's contract
	Possible Soil erosion	Short-term and temporary	• Contain excavation and other similar activities within design boundaries • Immediately stabilize areas once cut and fill activities are completed • Introduce vegetative cover in areas that will remain permanently open • Cover with pebbles or gravel areas that are to remain open for a long period of time • Peak Ground Acceleration (PGA) values for the site should be determined and incorporated in the	Contractor / CUCD to monitor for compliance and reporting to IA / SCEEP	Include such measure in the Contractor's TOR

			design.		
	Waste	Temporary and short term	• Ensure that all hazardous waste from temporary storage facility located at the landfill is sent to an appropriate final disposal facility	Contractor / PIU	Management time, as per con-tract
	Flora	Temporary and short term	• Re-introduce local occurring vegetative cover in areas within the SLF where it would be most appropriate. Shallow rooted vegetation is recommended	Contractor / CUCD to monitor for compliance and reporting to IA / SCEEP	Include such measure in the Contractor's TOR
	Traffic	Temporary and short term	• Regulate the entry and exit of vehicles and equipment in the construction site • Properly regulate delivery of materials into the project site • Impose minimum speed within the project site • Do not allow vehicles to stay within the project site for a long period of time • Regular monitoring to ensure that traffic flow remains optimal and clean- up of any debris can be undertaken immediately. • Regular maintenance of equipment.	Contractor / CUCD to monitor for compliance and reporting to IA	Include such measure in the Contractor's TOR
	Occupational health and safety	Temporary and short term	• Induction and orientation meetings will be undertaken by all workers. Tool box talks are also recommended. • Only qualified workers will be hired • Strictly impose and monitor use of PPE by workers. Regular inspections will be conducted. • Provide HSE manuals and require placement of safety signs and placards • Restrict movement of personnel in danger zones	Contractor / CUCD to monitor for compliance and reporting to IA	Include such cost / measure in the Contractor's contract

			• Insurance Policy for Workmen Compensation should be provided. • Conduct awareness and training programs on safety and health issues to be handled by the designated HSE Officer.		
Community Impacts	Community health, safety and security	Temporary and short term	• Develop and implement procedures for protecting public health and safety (e.g. traffic management plan, fencing, drivers training program, pedestrian access and trespassing plan, road design, slope stability, clean-up of spills, well visible signage, awareness-raising)	Contractor / CUCD to monitor	Include such cost / measure in the Contractor's contract
	Loss of income of informal waste pickers		• Identify alternative livelihood options for the waste pickers in accordance with the principles of livelihood framework prepared as above and in consultation with the affected people.	Local Hokimiyat	Consultant remuneration
Closure of the existing dumpsite		Temporary and long term	• Conduct a detailed site assessment covering the entire 59 hectares • Development of a 'safe closure plan' • Adequate and prompt covering and compaction to prevent exposure of wastes • Induction and orientation meetings with special focus in the use of PPE will be undertaken by all workers. • Require placement of safety signs and placards • Conduct of post-closure environmental monitoring Maintenance of installed facilities. • Precautionary measures should be taken to ensure uncontrolled fires are not started as a consequence of the closure activities.	Contractor / CUCD to monitor for compliance and reporting to IA / SCEEP Post closure management shall be handled by the IA / PIU	Include such cost / measure in the Contractor's contract

III. Operation Phase					
Operation of the SLF	Air Emissions / Air Quality	Permanent and long term	• Gas emission (i.e. generation of objectionable odors) from the landfill is expected to be moderate. • Provide all employees with appropriate PPE • Monitor air quality based on a specified in the monitoring program • Regulate movement of vehicles inside the landfill to minimize emissions	PIU and SCEEP for monitoring	Cost should be included in the operating budget
	Health & Safety	Significant, permanent and long-term	• Strictly impose and monitor use of PPE by personnel especially those engaged in the handling of wastes • Provide and require safety signs and manuals • Restrict movement of personnel in danger zones • HSE manual and Insurance Policy for Workmen Compensation should be provided. • Conduct awareness and training programs on safety and health issues • Make available first aid kits in the landfill area • Make available a vehicle that can bring victims to hospitals • Strictly monitor the entry and exit of outsiders inside the landfill • Precautionary measures should be taken to ensure uncontrolled fires are not started as a consequence operational activities.	PIU and PIU Consultant for monitoring	Cost should be included in the operating budget
	Noise	Insignificant, long term and permanent	• Install mufflers and silencers for machines and equipment • Avoid working during rest periods	PIU and SCEEP for monitoring	Cost should be included in the operating budget

			• Regularly maintain equipment • Impose minimum speed limits within the project site		
	Groundwater quality	Significant, permanent, long term	• Use of HDPE liner and establish leachate collection and treatment system as designed and planned • Monitor leachate quality, if any • Ensure that no leachate percolate into the ground by consistently conducting quality checks of liner prior to disposal. • Ensure that all leachate are collected and treated • Properly cover the landfill after the cell is filled • Introduce vegetative cover in areas where it would be applicable to promote evapo-transpiration and re-direct portions of the precipitation.	PIU Consultant, PIU and SCEEP for monitoring	Cost should be included in the operating budget
	Vermin & other pests	Significant, temporary and short term	• Ensure that all containers are properly enclosed to avoid manifestation • Covering should be done every end of the day's operations	PIU / SCEEP for monitoring	Cost should be included in the operating budget
Operation of the SLF	Traffic	Significant, long term and permanent	• Regulate the entry and exit of vehicles and equipment in the SLF • All dump trucks should carry a waste manifest / legal papers to avoid long stand by times at the gate. • Impose minimum speed within the project site. • Do not allow vehicles to stay within the project site for a long period of time • Proper maintenance of the internal road network. • Employ a traffic management system at the ingress/egress of the project	Local authorities	Cost should be included in the operating budget

			site. A traffic circulation plan should be developed not to hamper the traffic flow.		
Operation of auxiliary facilities (e.g. Leachate Treatment Plant)	Air Emissions	Significant, permanent and long term	• Foul odors are expected to be a permanent feature of the plant. It is therefore necessary that most appropriate ventilation system is implemented. This system should also maintain the appropriate air exchange ratio to minimize stagnation within the plant. • provide all employees with appropriate PPE • monitor air quality (indoor and outdoor) based on a specified in the monitoring program • Regular monitoring for any leaks (loss in pressure) and/or for spills	SCEEP for monitoring	Included in the operating budget
	Health & Safety	significant, permanent and long term	• Training for personnel pertinent to operations and maintenance. • Provide the necessary PPE and strictly impose and monitor its use by employees • Provide require safety signs and placards and restrict movement of personnel in danger zones • Conduct awareness and training programs on safety and health issues • Make available first aid kits • Strictly monitor the entry and exit of outsiders inside the facility	Consultant, PIU/ SCEEP for monitoring	Included in the operating budget
Operation of auxiliary facilities (e.g. Leachate Treatment Plant)	Groundwater quality	Moderate, permanent and long term	• Ensure that all containers and tunnels are properly sealed • Ensure no leakages in the containers and tunnels • Whenever applicable, all floors must be properly sealed	Consultant, PIU/ SCEEP for monitoring	Cost should be included in the operating budget

			• Ensure that leachate and other spills are properly collected and not disposed in sensitive areas • Water usage shall be monitored.		
	Noise	Insignificant, negligible and short term	*Note: There are no sources of high level noise from the operation of the plant.* *Whenever excessive noise is to be generated, this will be short term.*	PIU and SCEEP for monitoring	Cost should be included in the operating budget
	Vermin & other pests	Insignificant, negligible and short term	*The presence of vermin and pest will be very minimal since the facility and its equipment are totally closed. To ensure that employees are not exposed to deleterious materials;* • All workers and personnel shall be provided with appropriate PPE • Use of the PPE must be strictly implemented and monitored.	PIU Consultant, PIU for monitoring	Cost should be included in the operating budget
The environmental management plan [especially for the construction phase] does not claim to be complete and can be expanded at any time according to the need and necessity.					

Annex 2 Assessment to the water analysis from a well 1,8 km fare from the old dump

Hydrogeological data on the „Akhangaran sanitary technical site for landfilling the municipal solid waste", located in the Akhangaran district of the Tashkent region

„Akhangaran sanitary technical site for landfilling the municipal solid waste" administratively is located within the borders of the Akhangaran district of the Tashkent region. The information herebelow is collected and prepared based on the data of the survey borehole no. ГХК 61/2н which is situated at a distance of 1.8 km southward from the site of landfilling (Figure 1).

Lithological content of the MSW landfilling section of the site.

Lithological cross section along the borehole no. ГХК 61/2н:

the depth from 0.0 m to 13.5 m consists of loamy soil

the depth from 13.5 m down to 16.5 m consists of gravel

the depth from 16.5 m to 20.0 m consists of loamy soil.

Average annual level of groundwater within the span of 2018: 4.03 m.

Minimum 20.38 m in April, max. 4.98 m. in February.

Amplitude of the variation of the groundwater level: from 0.76 m. up to 2.21 m.

Chemical composition of the groundwater is provided in Table 1.

Results of chemical analysis of water sampled with the borehole ГХК 61/2н of the Tashkent Hydrogeological Station

Table 1.

Date	Water hardness		pH	Dry residue	Ionic content									NH_4
	General	Non-carbonate			Anions						Cations			
					HCO_3	SO_4	Cl	CO_3	NO_2	NO_3	Ca	Mg	Na + K	
21.05.18	18.60	15.10	7.10	1956	214	982	163	-	-	40	212	97	240.6	< 0.1

Head of the Station /signature is given in the original paper/ F. G. Khaydarov