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

Environmental Monitoring Report

Reporting Period: July - September 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)

October 2019

Environmental Monitoring Report

Project No: *45366*
Reporting period: July- September 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

Endorsed by: Mr. Rustam Shukurov - Head of PIU

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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 8-th EMR for the project and covers July – September 2019 reporting period. This Quarter 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 July – September 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. In recent years, the population in Tashkent Region has increased year by year and the urban area has been expanding, so that the amount of domestic garbage has been increasing year by year. The current disposal method of domestic garbage in Tashkent is to be sent to existing informal landfills for burying. The existing irregular landfill was used from 1968 and it's 50 years so far. At present, it's proposed to build a regular landfill beside irregular landfill and the irregular landfill will be closed.

5. 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.

6. 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;

7. 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

8. 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".

9. 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.

10. 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.

11. 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.

12. 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.

13. 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

14. 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.

15. 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

16. 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.

17. 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).

18. 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.

19. 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

20. 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 area for the Landfill including the access road will cover approximately 26.51 hectares of area which was protected against private land fond. According to the detailed design of the project in total 30.91 hectare land are required for the project.

21. Location map of Akhangaran landfill is given on **Figure 1** below.

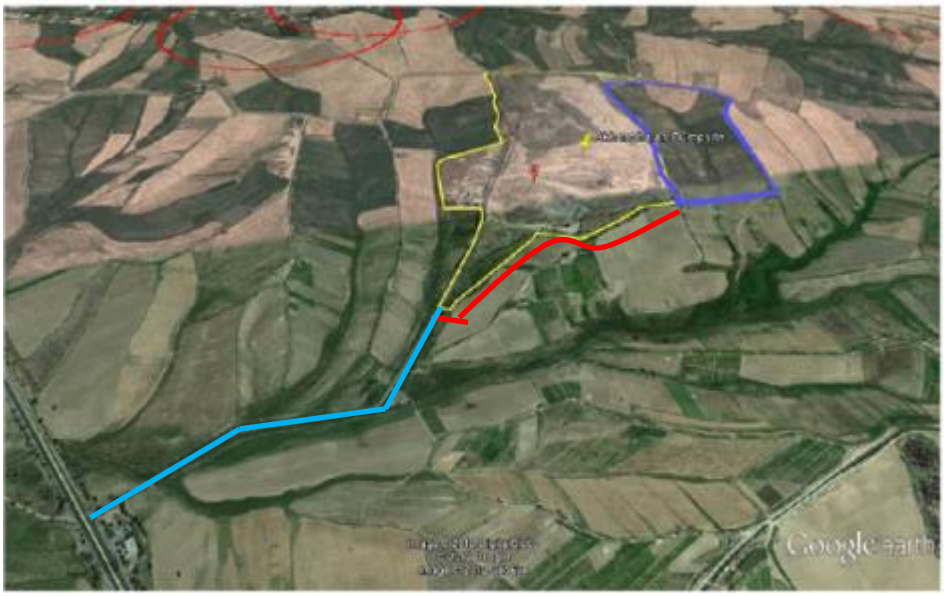
[1] Acc. to the President Decree #UP 5024 from 21.04.2017 the State Committee of Uzbekistan for Nature Protection was renamed into the State Committee of the Republic of Uzbekistan of Ecology and Environment Protection (SCEEP)

Figure 1. Location map of Akhangaran landfill

22. Access to the site: Land acquisition for the expansion of existing landfill will not be required. 1.2 ha to prolongate the access road to the new one will be compensated by the State This is visualized below on given image as a red line (**Figure 2** below). The Access to land will be through in the first part by already functioning road to the existing dumpsite. The second section to the new SLF goes parallel with the border of the existing dumpsite. Existing access and other bypass roads should be taken in consideration for repair- and reconstructions works. Decision regarding this issue can only be done prior the construction work according to the necessaty of construction technology by the Contractor.

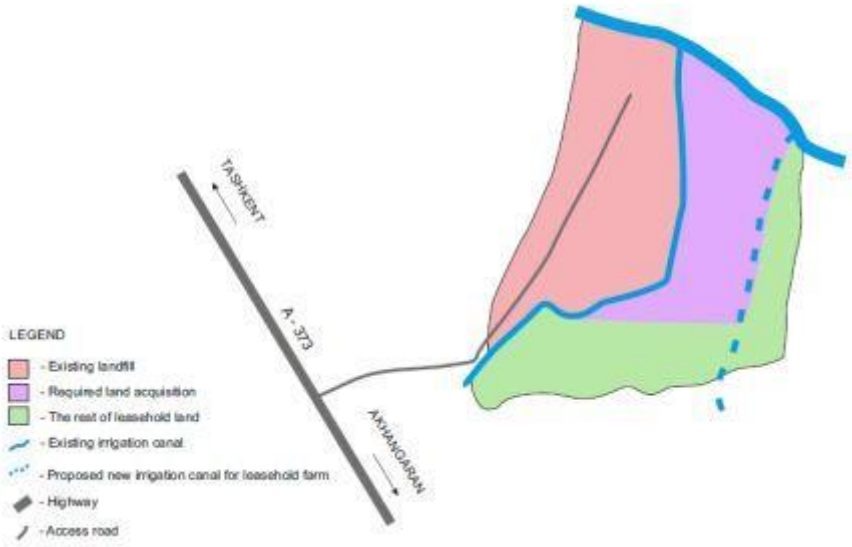
23. Buffer zone for the SLF will be within the acquired land plots.

Figure 2. Proposed Akhangaran landfill expansion



* Yellow line is border of existing landfill; blue line is border of expansion; red the access road to the new SLF; blue the existing access road (schema)

Figure 3. Map of acquired land plot and irrigation canal



24. 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 without a request for compensation, (sanitary zone)The owner of the farm has stopped his farming activity at this plot.[3]

25. 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. ensure keeping the working conditions of the existing irrigation, melioration and engineering infrastructures located in the neighboring farmer and agricultural areas;
iii. upon using of this land, do re-cultivation according to Regulation on land reclamation, removal, conservation and rational use of the fertile soil layer[4].
iv. be aware that the allocated land shall be used within three years upon issuing this decree.

26. 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.

27. According to the general requirements for the selection of landfill sites, the response to the site selection of this sanitary landfill is shown in Table 1 below.

Table 1: Response table of proposed site according to general requirements

№	Requirement	Response	Remark
1	The landfill shall be set up in accordance with the overall planning for urban construction, and meet the requirements of overall planning for local urban regional environmental and the requirements of development planning	Accordant	The planning department agreed to use the land for environmental sanitation facility- [New SLF];

[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 SCEEP, the State Committee on Land Resources, Geodesy, Cartography and the State Cadastre, and the State Inspectorate "Sanoatgeokontekhnazorat" and other authorized bodies, in accordance with their competencies, will have to ensure effective control and monitoring of quality and timeliness of work on the re-cultivation of disturbed lands and restoration of their fertility, removal, conservation and use fertile soil layer.

	for local urban environmental health;		
2	The landfill shall not affect the surrounding environment or affect the surrounding environment not exceeding current national standards. It is located in the down prevailing wind direction in summer, and is 500m away from the habitat of humans and livestock;	Accordant	There are no industrial enterprises, residential areas, water sources and key scenic spots and historical sites within 500m below and near the maximum frequency wind direction downstream;
3	The requirements for the landfill shall be consistent with the local atmospheric protection, water and soil resources protection, nature protection and ecological balance. The landfill shall be located in area with poor underground water, and shall be kept away from water sources and located in the downstream area of underground water flow direction to the greatest extent;	Accordant	The urban area is located on the side of the maximum frequency wind direction, where the underground water is less.
4	The landfill shall have a corresponding storage capacity. Its service life shall be more than 10 years. In special cases, it shall not be less than 8 years;	Accordant	After calculation, the sanitary landfill can serve for about 13 years;
5	It has convenient transportation, reasonable transportation distance, convenient water supply and power supply conditions;	Accordant	It is about 30km average away from each garbage station in the service area. The water is supplied by drilling wells, and the power supply is convenient;
6	The land acquisition cost is low and the land use value is low.	Accordant	The use value of hilly area and land is low.

28. Thus it can be seen that the site meets the general requirements for landfills, and has good engineering conditions for water supply, power supply, road traffic and others, so the site is suitable as a construction site.

2.3. Necessity of project construction

29. The necessity of the construction of the project is mainly embodied in the following aspects:

(1) Garbage sanitary landfills are essential as urban environmental infrastructure. If the garbage is piled up disorderly, it is difficult to match the modern city or meet the requirements of sustainable urban development. Harmless disposal of garbage is a civil project to maintain environmental health and ensure people's health.

(2) The population of Tashkent has increased rapidly in recent years, and the daily output of garbage has reached about 1,700 tons. The existing irregular landfills have a long service life, and the storage capacity is tight. Meanwhile, the new regular landfills are about to be built and put into use, so the closure of the old landfills is imminent. This goal will also enable the execution of the President Decree of the Republic of Uzbekistan dated April 17, 2019 No.PP-4291 approving Strategy for Solid Household Waste Management in the Republic of Uzbekistan for the period 2019-2028 in the Republic of Uzbekistan for the period 2019-2028.

(3) Tashkent has rich tourism resources such as natural and human landscapes. Its designated function is a modern ecological city with a good living environment suitable for leisure tourism. Therefore, how to effectively protect the ecological environment will become an important issue in Tashkent.

(4) The current domestic garbage disposal facility in Tashkent is an informal landfill in the southeastern of Tashkent. The capacity of the landfill is near saturating and will be closed within the project. The closing of the old dumpsite can guarantee that the

domestic garbage generated in Tashkent is harmlessly disposed of basically to reduce its serious pollution to the environment and serious threat to soil and underground water. It is an important livelihood project to protect the landscape of Tashkent, so the project is an important infrastructure for Tashkent, and an indispensable link in the development of Tashkent.

30. In general, the domestic waste treatment facility is a major infrastructure of the city, and the closure of the existing landfill site is related to the ecological environment and sustainable development of Tashkent, as well as the vital interests of the general public. The construction of the project will create the necessary basic conditions for the development of Tashkent, and is of great significance to protect the ecological and tourism environment of the region, perfect the investment environment and improve people's living quality.

2.4. Project Contracts and Management

31. 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.

32. 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.3 .

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

34. 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.

35. The C_2 Consultant for "Sanitary Landfill design and Supervision – CUCD [China Urban Construction Design & Research Institute] is responsible to serve as the "Engineer" within the context of the Conditions of Contract (COC) and are required to nominate Resident Engineer [TMM] 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".

36. 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.

37. 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.

38. Main organizations involved in the project and related to environmental safeguards are presented in the **Table 2** below:

Table 2: **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
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	31.12.2019

39. The role of each agency in the project is presented in the Table 3.

Table 3: 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

40. The working environment among SWMIP and Contractor has remained sound during this reporting period. Daily, weekly and regular monthly meetings are held between PIU, Maxsustrans and the Contractor (according to the necessity), and issue-based meetings are held among all parties in PIU and Employers (Maxsustrans) office with China Urban Construction Design & Research Institute Co., Ltd. (CUCD) or his local partner.

2.5. Project Activities During Current Reporting Period

41. 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 4: 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%**

42. 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)

43. It's done package procured.

2) Construction/reconstruction of new waste collection points (Package CW-5)

(SUE /Maxsustrans/CB-W5)

44. It's done package procured.

3) Waste Collection & Transfer Trucks (Package G-2)

(SUE /Maxsustrans/CB-G2-2016-02)

45. It's done package procured.

46. *Note:* In accordance with the protocol instructions of the Administration of the President of the Republic of Uzbekistan dated February 13, 2018. No. 2207-xx, the Cabinet of Ministers dated 01/23/2018. No. 01-21 / 1-116 and dated September 26, 2018, it was entrusted to purchase an additional number of garbage trucks in the amount of 59 units due to the savings. Projected costs of $ 4.2 million are included in the project components and agreed with ADB and the Ministry of Finance. Tender documents for the purchase of these garbage trucks are expected to be approved.

4) Consultant for support of PIU in project implementation (Package C-1)

(SUE /Maxsustrans/QCBS-C1-2016-01)

47. 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. Currently, Consultant is working on the preparation of tender documents for the purchase of special equipment for the landfill and additional garbage trucks, the construction of a new landfill.

5) 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)

48. 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. Currently, Consultant is working on optimizing transport logistics and improving the process of managing services for the removal of MSW SUE "Makhsustrans" (development of technical specifications for the implementation of these systems)

6) Consultant for designing and construction supervision of new landfill and closure of old landfill

(SUE/Maxsustrans/QCBS-C2)

49. 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.

50. The design and supervision will be conducted in two separate phases. It was planned that the design phase of 6 months and supervision phase of 18 months. Consultant's services are provided until December 2020

51. Middle of August the Consultant has submitted the final design documentation for the construction of a new solid waste landfill on 30 hectares and the closure of the old landfill on 59 hectares, which is currently under assessment by ~~located in~~ the state examination bodies.

52. Design Basis
(1) Topographic map of the proposed site to prepare;
(2) Feasibility study report of the project;
(3) Geological survey report of the project location;
(4) Hydrogeological survey report of the project site
(5) Project assignment

2.6. Description of benefit of the final Project Design

53. CUCD designed following New Sanitary Landfill with following main data:
- 24,62 ha for the clean storing of solid waste
- Expected life time based on current and delivering quantities in the future by approximately 12 years. Tor requested minimum 10 years.
- Optimized liner system to reduce the thickness for more waste space
- Enlargement of the depth
- Using a PS for leachate collection of the part below the surface (-20m)
- Max. height by 30 m over ground
- Part of the top soil and other excavation material will be used for closure of the old landfill

54. These variant gives the best input for a ecological protection and increasing of the life time of the new landfill.

2.7. Description of Any Changes to Agreed Construction methods

55. Not applicable.

3. ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1. General Description of Environmental Safeguard Activities

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

57. 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.

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

Phase I – Detailed Engineering Design

59. As already mentioned in the last report

i. to provide a detailed description of the scope of construction and installation works and make up a calculation of "Initial cost estimate of construction at current prices" as cost estimation as part of the Detail Design, BoQ etc. together with the preparation of the Bidding documents together with the C_1 Consultant.;
ii. to provide a technological scheme for operating the new landfill, and also to develop the necessary measures for the period after the closure of the landfill and its handover for further use;
iii. to obtain a positive conclusion from the state expertise of the authorized body of the Republic of Uzbekistan on design documentation for construction of the new landfill and closure of the existing dumpsite. If necessary, SUE "Maxsustrans" should assist the Consultant in obtaining approval from the state bodies and organizations for conducting detailed design and during it;
iv. to support SUE "Maxsustrans" and PIU in general management and implementation of the Civil Works contract, including coordination of activities, monitoring, record keeping, certification of contractor's work and reporting on work progress.

Phase II – Supervision of Construction Works

i. to be responsible for supervision of the new landfill construction and closure of the existing dumpsite, including regular supervision over contractors, performed works quality, installation of equipment, deadlines and costs from start to completion;
ii. to ensure that construction works are carried out in accordance with international and national standards, technical specifications and approved design documents;
iii. to ensure that construction is carried out by the contractor in accordance with environmental and social norms and regulations of Uzbekistan and Safeguard Policy of ADB;
iv. to carry out planning and analysis of the final commissioning tests conducted at the completion of each section of works;

v. to carry out planning of monitoring activities to be performed during the Defects Liability Period and advising SUE "Maxsustrans" and PIU at issuing the Works Completion Certificate;
vi. to advise the SUE "Maxsustrans" and PIU on all matters relating to construction of the new landfill and closure of the existing dumpsite;
vii. to prepare documents and regular reports for SUE "Maxsustrans" and PIU as per TOR;
viii. to evaluate the quantity and value of the completed works as well as payments to the Contractors;
ix. to ensure implementation of Quality Assurance Plan, Environmental Monitoring Program, Occupational Safety Plan on works site of the Contractors;
x. to communicate and support SUE "Maxsustrans" and PIU if any changes or deviations from the originally approved design during the Works;
xi. to conduct an Initial Environmental Evaluation (IEE), an Environmental Impact Assessment (EIA), an Environmental Management Plan (EMP) and an Resettlement Program / Social Impact Assessment (RP / SIA) program. The Consultant should submit an EIA for review and approval by SCEEP and receive a positive opinion;
xii. to submit the results of the discussion of policy measures, laws, regulations, standards and guidelines that directly apply or relate to the environmental and social issues of the Project at the national and local level and taking into account ADB requirements. When analyzing the impact, it is necessary to consider all potential environmental impacts and risks of the project. The analysis should cover both unfavorable and favorable consequences of the project. The Consultant should also conduct an analysis of the possibility that specific individuals or groups of individuals may be affected unequally or disproportionately by the potentially harmful environmental impact of the project because of their poorly protected or socially vulnerable status. The EMP should identify desirable outcomes and actions to address issues related to identified impacts and risks, and to ensure compliance with existing requirements as measurable events. Also, the Consultant should consider information disclosure measures, a mechanism for reviewing and responding to complaints, and a process of ongoing consultation with affected individuals and with their participation during the implementation of the project. Consultations should include the conduct of substantive consultations with persons affected by the project and other relevant parties, including civil society, and facilitating their informed participation.

60. The technical route of new landfill project is as follows:

1) The type of the domestic garbage sanitary landfill: "**Valley Landfill**"
The construction site of the project is a valley, so it is designed according to the design method for valley landfills.
2) Domestic garbage disposal process: "Improved Anaerobic Landfill Process"
The landfill uses an improved anaerobic landfill process to make corresponding engineering design, and set up a bottom impermeable system, a leachate collection system, and a landfill gases drainage system, so as to facilitate the operations and standardized management of sanitary landfill.
3) Landfill operation process: **"Sanitary Landfill Operation"**
Domestic garbage in the sanitary landfill needs to be dumped, paved, compacted, covered and disinfected in accordance with certain procedures to reduce or eliminate the impact of domestic garbage on the surrounding environment.

61. Entry requirements for domestic garbage sanitary landfill: the waste entering the domestic garbage sanitary landfill shall be domestic garbage. It is strictly forbidden to mix domestic garbage with the following materials to enter the domestic garbage sanitary landfill:

- Toxic industrial products and their residues;
- Toxic reagents and medicines;
- Substances that have chemical reactions and produce harmful substances;
- Corrosive or radioactive materials;
- Dangerous goods such as flammables and explosives;
- Biohazards and hospital waste;
- Other substances that seriously pollute the environment.

62. In order to ensure that the above substances do not enter the landfill area, sampling inspection of the incoming garbage shall be organized regularly.

3.2 Site Audits

63. The PIU Consultants conducted inspection of the Project sites with environmental relevance during reporting period on 19-20 August 2019.

64. It was revealed that the pollution sources in this project mainly include the following aspects:

(1) Atmospheric pollutants: Atmospheric pollutants mainly refer to the landfill gas in the landfill zone, the main components are CH4, CO2, NH3, etc.
(2) Sewage: The sewage in the site mainly comes from the landfill leachate, as well as the vehicle flushing sewage.
(3) Noise: The noise mainly comes from the mechanical working noise in the landfill.
(4) Odor: Odor pollution comes from garbage itself, landfill leachate and landfill gas (2 etc.).

3.2.1 ADB Missions

65. ADB mission took place from 03-20 September 2019. A mission visited Uzbekistan between 03-20th of September to undertake:

- UZB: Proposed Suitable Solid Waste Management Project (SSWMP) – prepare the draft report and recommendation of the President (RRP) and all other required project documents targeting for circulation on 29 September 2019; and
- L3067-UZB: Solid Waste Management Improvement Project (SSWMIP) – (i) review overall progress of the project implementation; (ii) identify issues and constraints encountered in project implementation, and (iii) recommend measures on overcoming deficiencies and catching up disbursement projections.

3.2.2 Issues Tracking (Based on Non-Conformance Notices)

66. Not yet applicable.

3.2.3 Trends

67. Not yet applicable.

3.2.4 Unanticipated Environmental Impacts or Risks

68. Not yet applicable.

4. RESULTS OF ENVIRONMENTAL MONITORING

4.1. Overview of Monitoring Conducted during Current Period

69. 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.

70. 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.

71. 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.

72. 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.

73. 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.

74. 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.

75. 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.

76. 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.

77. 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.

78. The operation management of domestic garbage treatment facilities involves many aspects, and environmental monitoring is one of the important links of operation management. It is an important mark of the standardized operation management of domestic waste sanitary landfills. Environmental monitoring is the evaluation level of the operation status of domestic waste treatment facilities. Environmental monitoring involves all environmental factors such as atmosphere, groundwater, sewage, leachate, noise, biogas and various pollutants, which can fully reflect the environmental situation. The environmental monitoring project of domestic waste treatment facilities must be carried out periodically and in stages according to standards. The main environmental monitoring projects are shown in Table 5.

79. In accordance with the geographical environment and characteristics of the project, the existing monitoring department of SCEEP can be responsible for the environmental management and monitoring. At this stage, the background values of the site environment shall be tested and investigated immediately.

(1) Background environmental monitoring of the site

Before the domestic garbage sanitary landfill is put into operation, the environmental protection department and the Sanitation and Anti-epidemic Station shall carry out background monitoring for various environmental and microbial indicators, as well as the groundwater and surface water, and put them into the archives.

(2) Environmental quality monitoring of the site

To ensure that the anticipated environmental protection objectives are achieved, a sound environmental monitoring system shall be established and improved at the site.

Table 5 Environmental monitoring item table

	Monitoring item	Note
Surface water	pH、SS、DO、BOD5、CODcr、NH3-N、NO2-N、NO3-N、CL-、TP etc.	Three background monitoring shall be conducted for the landfill, once in dry season, flood season and normal season, and twice in peak month.
Groundwater	13 items of PH, total hardness, chloride, COD, ammonia nitrogen, volatile phenol, cyanide, Escherichia coli, etc. Water level shall be monitored at the same time	The monitoring wells shall be cleaned three days before sampling. The amount of water taken out during well washing is 3-5 times the amount of water stored in the wells, and the monitoring indicators will be adjusted when necessary. The monitoring points are groundwater monitoring wells and domestic water wells. It shall be monitored three times a year, the sampling time is in April, August and November, respectively.
Leachate	SS、COD、BOD5、NH4-N、coliform value	Monitoring points are: leachate collection wells, leachate treatment facilities outlet. It shall be monitored three times a year, the sampling time is in April, August and November, respectively
Atmosphere	TSP, odor intensity, ammonia, hydrogen sulfide, methyl mercaptan	There is a monitoring point in both upper and lower wind directions. When the wind direction is not fixed, the monitoring point can be increased appropriately. It shall be monitored twice a year, the sampling time is in April and August, respectively
Landfill gas	CH4、CO2、CO、N2、O2、H2、H2S	The monitoring point is the methane collection orifice, which can monitor one point. It shall be monitored once a year in August
Fly breeding monitoring	Field boundary noise	Within 1~3 years after the landfill is opened, it shall be monitored 4 times a year, preferably in July ~ September
Noise	Field boundary noise	

4.2. Trends

80. Not yet applicable.

4.3. Summary of Monitoring Outcomes

81. Not yet applicable.

4.4. Material Resources Utilisation

82. Not yet applicable.

4.5. Waste Management

83. Not yet applicable.

4.6. Health and Safety

84. Not yet applicable.

4.7. Training

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

86. It is necessary to arrange training courses for the staff of the waste collection system after the new equipment is purchased. When purchasing waste trucks, specific requirements to personnel training are to be included into the conditions of the procurement contract. The training is to cover measures on safe and efficient operation of the vehicles, possible emergencies and repairs.

87. It is recommended to introduce a system for identification of occupational risks. The personnel of waste collection company shall take active part in such risk identification activities. The system shall be formalized by a document listing and ranking the existing risks and outlining risk management and mitigation measures, including identification of the need for protective means and clothing. The training program should be based on this document.

5. FUNCTIONING OF THE SEMP

5.1. SEMP Review

88. 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.

89. The Specific Environment Management Plan (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 CUCD – Consultant and PIU as EA.

90. 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.

91. 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.

92. The basis of a Site Specific EMP (SSEMP) should be the contractors developed Construction Method Statements. As part of the Construction Method Statements the contractor shall, with the support of the ES and PIU-EA with using of 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.

93. 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.

94. Within the above mentioned plans there will also be an Environmental Monitoring Plan for Construction and Operation period. 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

95. Not yet applicable.

6.2. Opportunities for Improvement

96. Not yet applicable.

7. SUMMARY AND RECOMMENDATIONS

7.1. Summary

97. In general, the implementation of environmental and social safeguards measures across different projects under SWMIP is in accordance with the loan covenants, contract specification and EMP stipulated in the contract and mostly found to be satisfactory during the reporting period.

98. CUCD have mobilized their Environmental Officer in their respective packages to ensure effective implementation of EMP, identification of additional environmental issues as well as record keeping on environmental safeguards.

99. The detail design (DD) for the New Sanitary Landfill has been finalized in August 2019. All documents has been submitted to the state expertise committee for their assessment and approval. This is necessary prior announcing the project for international tendering and submitting the corresponding bidding documents.

100. CUCD cooperate prior finalization of the DD with the C_3 Consultant for the capacity developing - GWCC and the Waste Transfer and Valorisation Company as the Client has suggested. The received as waste composition and water content are used for the DD to estimate gas generation and leachate amount and implemented into the DD of the project

101. Due to the conditions that not sufficient land is allocated to new SLF this item will be not a part of the DD of CUCD. If the Client insist on building the plant later CUCD suggest to invite other expert to develop the design for a composting plant.

102. As soon as construction works commence (estimated Q1 2020), environmental monitoring will be conducted.

103. 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	Q3, 2019	CUCD Consultant
3	Procurement of Landfill Equipment - Equipment Commissioning	Q1, 2020	City Tender Commission, PIU
4	SUE Maxsustrans – Capacity Development Program Consultants will finalize his contract	Q3, 2019	SUE Maxsustrans, PIU
5	Selection of Contractor for Construction Works	Q4, 2019	PIU
6.	Collect and provide the relevant information on environmental indicators to PIU.	Permanent ongoing	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 (acc. Contract)	PIU Consultants National Social Safeguards and Development Specialist

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

105. 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.

106. 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.

107. The next EMR (reflecting July-December 2019 reporting period) will be submitted to the Client/ PIU/ 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	• Not necessary • The landlord gives it back to the No IR impacts; • No mitigation measures for involuntary land acquisition; • The required lands for construction allocated from the district reserve land; • There is no possibility of any impacts in terms of losing incomes and livelihoods. • No grievance and complaints are received on project activity. Ensure clear delineation and fencing of landfill area	PIU for implementation and monitoring	Included in project Cost
Environmental and Social Monitoring and Assessment	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	PIU, CUCD	Own resources, Consultant remuneration

			local regulations.		
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)	Contractor / CUCD to monitor for compliance and reporting to IA / SCEEP	Include such measure in the Contractor's TOR

			values for the site should be determined and incorporated in the 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	Contractor / CUCD to monitor for compliance and reporting to IA	Include such cost / measure in the Contractor's contract

			• Restrict movement of personnel in danger zones • 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	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

			the closure activities.		
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	PIU and PIU Consultant for monitoring	Cost should be included in the operating budget

			operational activities.		
	Noise	Insignificant, long term and permanent	• Install mufflers and silencers for machines and equipment • Avoid working during rest periods • Regularly maintain equipment • Impose minimum speed limits within the project site	PIU and SCEEP for monitoring	Cost should be included in the operating budget
	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 evapotranspiration 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	Local authorities	Cost should be included in the operating budget

			time • Proper maintenance of the internal road network. • Employ a traffic management system at the ingress/egress of the project 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, other storages and pipe lines are properly sealed • Ensure no leakages in the containers • Whenever applicable, all floors must be properly sealed • Ensure that leachate and other spills are properly collected and not disposed in sensitive areas • Water usage shall be monitored.	Consultant, PIU/ SCEEP for monitoring	Cost should be included in the operating budget
	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.					