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

Semi-annual January - June 2018

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

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

in association with

Infra Tech Consulting Ltd. (Uzbekistan)

June 2018

Semi-annual Environmental Monitoring Report

Project Number: 45366
Reporting period: January - June 2018

Loan Number: 3067-UZB

UZB: Solid Waste Management Improvement Project (SWMIP)

Financed by the ADB

Prepared by H.P. Gauff Ingenieure GmbH & Co. KG – JBG- (Germany) and Infra Tech Consulting SDN Ltd. (Uzbekistan)

For "State Unitary Enterprise "Maxsustrans" and Tashkent Municipality and the Asian Development Bank.

Endorsed by Mr. Ingo Schoebe, Team Leader H.P. Gauff Ingenieure GmbH & Co. KG – JBG, June 2018

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ABBREVIATIONS

ADB	Asian Development Bank
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. Preamble

1. This report represents the Semi - Annual Environmental Monitoring Review (SAEMR) for Solid Waste Management Improvement Project. The project includes a dynamic 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.

2. In addition, the project includes the necessary upgrading and refurbishment of the entire MSW collection and transport system of Tashkent. 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

3. Currently, unclassified wastes are dumped within an allocated area in Akhangaran commonly referred as the "Akhangaran Landfill". **Occasionally** a bulldozer is available for leveling solid waste and to 'clear' and 'cover' the dumped wastes. The required equipment and machinery (facilities) for a properly operation and to handle or treat residues even from simple domestic wastes (ex. liner or leachate collection) doesn't exist on site or not functioning. Operating, Handling and disposal of delivered solid waste wastes are done haphazardly. Added to this, open burning as a result of missing compaction and missing interim dump site closure is indiscriminately exacerbating the situation.
4. The adjacent areas are irrigated farmland predominantly characterized by undulating valleys. There are no residential areas or industrial facilities within a 4-kilometer radius. Farmers come primarily from villages located about 5 kilometers from the site. A possibly existing pollution of water from existing channels has not been tested yet.
5. At the landfill area, there are established basic facilities such as a weighbridge, administrative building, a maintenance shed, security gate and record-keeping shed. The area is connected to the main road Highway P2 via by a badly damaged asphalt access road that leads directly the landfill. The distance from the highway to the landfill area is about one kilometer.
6. At the existing landfill, it was observed that there is no fence and caution signs around facility.
7. Notwithstanding the installed systems for the Akhangaran landfill, the facility resembles more like a controlled dumpsite rather than an uncontrolled landfill as

commonly referred too. The existing disposal practice at the Akhangaran Landfill may be generally characterized as:

- ❖ Generally organized but employs sporadic dumping of wastes;
- ❖ Absence of data / information actual volume of waste stored at the site
- ❖ No controls over potential pollutants and residues generated and released from waste decomposition;
- ❖ Occasional vectors are attracted to the site due to exposed wastes;
- ❖ Potential generation of odors and pungent smoke from spontaneous combustion.

8. All in all, the existing practices of handling such wastes does not necessarily solve the problem but instead bring about additional environmentally deleterious issues which may affect the health and safety of the adjacent communities. This situation is similar to other smaller dump site areas within the jurisdiction or adjacent of the Tashkent region.

2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1. Project Description

9. As detailed explained within the last submitted reports there are no changes or adding necessary. Below in figure 1 the area is illustrated.

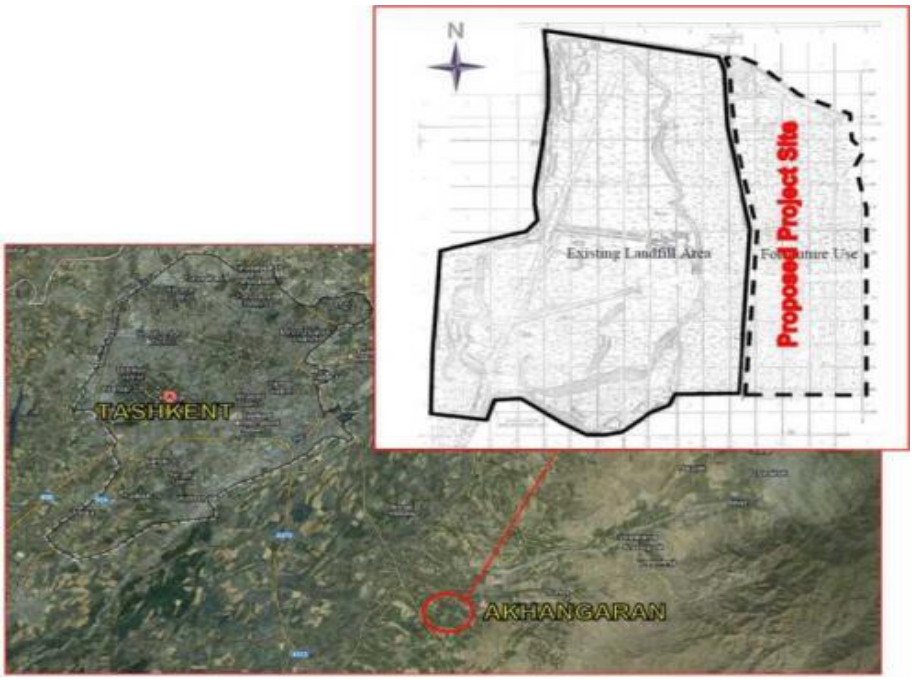
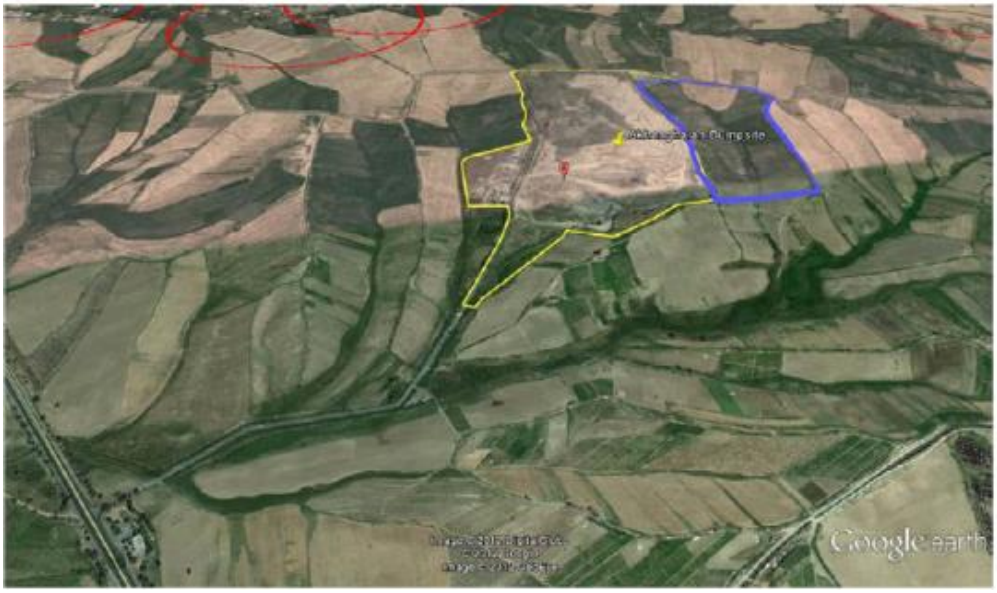


Figure 1 Location map of Akhangaran landfill

10. 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 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.



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

Figure 2 proposed Akhangaran landfill expansion

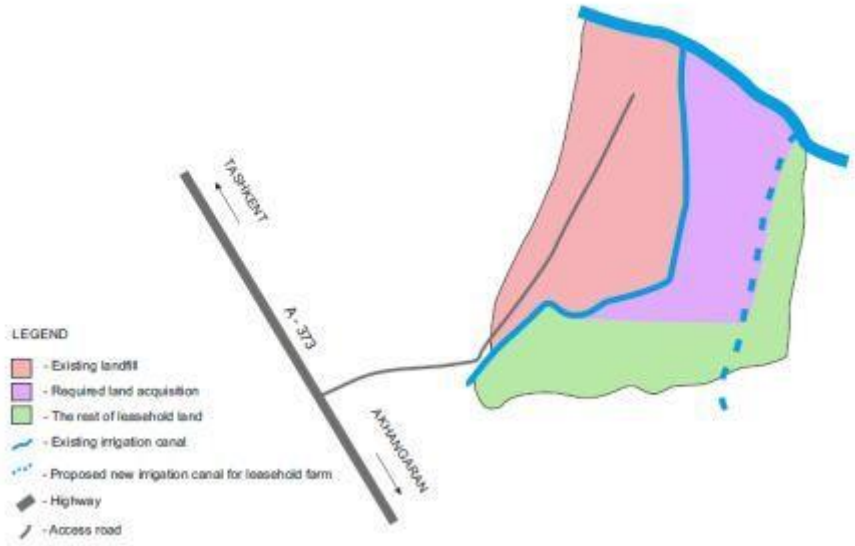


Figure 3 Map of acquired land plot and irrigation canal

2.2. Project Contracts and Management

11. PIU Consultants (H.P. Gauff Ingenieure GmbH & Co. KG and his JV-Partner Infra Tech Consulting SDN Ltd (Tashkent) supporting the PIU according to the contract with Amendment No.2.
12. Under the terms and conditions of the tender, the PIU Consultant Company has National Environmental Expert – Sergey Karandayev, who will implement environmental safeguards services.

13. The present Bi-annual Environmental Monitoring Report covers January - June 2018 - time period.

2.3. Project Activities During Current Reporting Period

2.3.1. Solid Waste Management in Tashkent

Waste Collection for Tashkent (City):

- State Unitary Enterprise (SUE) MAXSUSTRANS (in about 75% of all Mahallyas)
- Private Enterprises (in about 25% of all Mahallyas)

Waste Transfer and Disposal for Tashkent (City):

- State Enterprise "Waste Transfer and Utilization" (Transfer Stations, operator of the Landfill)
- Private Enterprises: waste picking (recyclables)

Waste Management within Tashkent (Region):

- SUE Toza Hudud Tashkent and private organizations

2.4. Overview on Services and Operation Procedures of Maxsustrans

14. Maxsustrans Tashkent is (besides to some private collection enterprises) responsible for waste collection services in Tashkent. The organization of Maxsustrans is divided into 4 departments covering the following fields:
    - "**Operation Department**" (Department for working with legal entities and operation of special trucks and machinery), responsible for Operation, Planning, Human Resources, Contracting
    - "**Customer Relations Department**", dealing with waste service customers, salaries, labour, financial issues
    - "**Department for Waste Collection Points and provision of sanitary conditions**"
    - "**Department for Engineering**" (Machinery repair and maintenance)
15. Maxsustrans is responsible for waste collection services in Tashkent. Approximately 1000 Collection Points are serving mostly residential areas over 11 districts of the city. To collect house hold waste approximately 12,000 Containers in sizes between 0,75 m3 and 1,1 m3 in operation, which has been a part of this Project. The 3 transfer stations and the Akhangaran landfill are operated by a separate state enterprise "Waste Transfer & Valorization Company" (controlled/implemented by Tashkent Municipality and SCEEP and Subsidiary of Maxsustrans – reports are submitted regularly). Tashkent is divided into 11 districts with own branches of Maxsustrans. Each branch must submit data to the City and SCEEP.
16. Maxsustrans is the only public waste collection operator in Tashkent, but based on a presidential decree also private operator - 46-Companies - are nowadays allowed to collect waste in the city. For the operation of the waste collection services a license permit is needed. With this strategy the competition between the companies is aimed to strengthen the business performance (nevertheless the private companies are working under control of Tashkent Municipality).
17. The operator of the transfer stations and the landfill is called "Waste Disposal & Utilization" (WDU); the company is a subsidiary of Maxsustrans. The 3 stations are in similar condition but it is foreseen that 1 transfer station should be closed and the

other two stations should be reconditioned with an increasing of their capacities. Main client of WDU is Maxsustrans itself but also the private waste collectors are also delivering the waste to the transfer stations.

18. Detailed data on waste quantities can be obtained from the transfer stations – gathered from 4 of 8 weight bridges. The other ones are out of service since a long time. Maxsustrans only receives data on total waste amount per day in written. The digital storage works only partially due to the age of the electronic.

19. In total Maxsustrans owns 355 waste collection trucks (waste collection vehicles, dumper trucks, other vehicles). A list of the vehicle fleet with specifications regarding brand, type, year of manufacture, load capacity and number of trucks was handed over. 280 of the collection trucks already have installed GPS in their vehicles (the rest was not equipped because of high age of the vehicle and frequent periods of maintenance). Software for processing the data from the GPS devices is not yet in operation.

20. The Monitoring section of the Department also collects vehicle related data covering mileage, condition, repairs, fuel consumption etc. and can be made available upon request and authorization from the head of the department.

2.5. Proper collection and dumping to appropriate sites

21. In order to implement a proper waste management system, existing practices should be changed and an effective system should be implemented. The matrix below distinguishes the existing waste management from the proposed project.

Existing Dumping Practices	Sanitary Landfill (SLF)
➢ Limited capacity; ➢ No Site Preparation and no cell planning- waste deposited across large part of the site; ➢ Thin layers of waste-relatively rapid aerobic decomposition; ➢ No leachate gas management; ➢ Limited compaction of waste; ➢ Litter blown within and beyond site boundary- no fence; ➢ Uncontrolled presence of Vermin, pests and scavenging animals; ➢ Waste picking and trading.	➢ Project design based on environmental assessment; ➢ Planned capacity with phased cell development; ➢ Full controlled emission and effluent management with abstraction and treatment; ➢ Extensive site preparation and containment Engineering; ➢ Compaction of waste to maximum specified target densities; ➢ Full record of waste Volume, types and sources; ➢ Specified operational procedure to protect local amenity including vector controls; ➢ Fence, gate and other site infrastructure to ensure no trespassing and waste picking; ➢ Promotes segregation and recycling at source or at collection points; ➢ Promotes segregation and recycling at source or at collection points.

2.6. Strategic Orientation of the SWM Sector

22. At present the solid waste management system in Uzbekistan is of traditional, low standard type all over the country. The waste is collected from individual houses and container stations and transported to simple landfills outside the cities. The collection covers only the bigger communities whereas the rural areas are left without service. Recycling is almost non-existent.

23. There are a number of laws and regulations which govern the solid waste operations in the country. Two important acts are the Law of Waste from 2002 and the Regulation for Collection and Removal of Solid and Liquid Wastes of 2014. The Presidential Decree of 2017 changed the rules to a large extent as it opened up for private companies to enter the market. Before the year 2017 all work was carried out by the municipalities, sometimes via municipal companies. The decree introduced competition by inviting new private companies to take over contracts in the bigger cities. However, the privatization has not yet changed the actual mode of operation.

24. The following list is intended to show excerpts of the relevant legal acts and other documents which govern and have an effect on solid waste management in Uzbekistan.

Title	Content
Constitution of the Republic of Uzbekistan	The Khokims are responsible for organization of the waste sector
Law on Wastes No. 362-II 05/04 2002	Definitions, Ownership, Responsibility of various governmental and regional/ local authorities, Legal entities, etc.
Regulation for Collection and Removal of Solid and Liquid Wastes Res. CoM N.194 dated 15 July 2014	Definitions, responsibilities of actors, including consumers, rules for payment of tariffs, contracts between contractor and waste generator, contractors responsibilities, etc
Decree of the President of the Republic of Uzbekistan of 21.04.2017 No. PP-2916 "On Measures for Cardinal Improvement and Development of the Waste Management System for 2017-2021"	Establishing Toza Hudud for waste operations outside Tashkent A comprehensive scheme for placement, collection, transportation, processing and disposal of MSW A contract to construct WCP:s Development program for old and new landfills Approval of investments for waste handling in cities
Norm No. 35 of August 30, 2016	Norms for the accumulation of solid domestic waste, the procedure for their removal and installation of garbage container sites
Norm No. 33 of August 19, 2014	Requirements for the collection, sorting and storage of solid and liquid household waste
Decree of 28.01.2013 of the State Committee for Nature Protection No. 1, Ministry of Emergency Situations No. 1, Ministry of Finance No. 8 and Ministry of Health No. 2	On approval of the Regulations on the disposal of pesticides and other toxic substances, as well as protection and maintenance of special polygons "(Registered by the Ministry of Justice on March 20, 2013, N 2438)

2.7. Establishment of modern SWM systems

25. The current waste disposal system has been through controlled dumpsites. These dumpsites often characterized by an area where garbage is simply transported, unloaded, and at times leveled by a bulldozer. Nearly all these sites operate with no protection against soil and groundwater contamination. The situation is further exacerbated by operators' seldom attempt to control pungent smoke, objectionable odor and vermin. Sorting is only achieved through scavenging, which at times tolerated, with no checks in place for the health and safety. Such dumpsites are inexpensive operate, but pose serious damage to the land, water, air, aesthetics, and the health of the surrounding population. These dumpsites are also difficult to rehabilitate after they are filled and abandoned. Failure to implement the project will result to allocation of land only to be subjected to the existing practice. Alternatives in this context will mean the establishment of the SLF at alternative sites or the project not pushing through. Although what is obvious is such alternatives shall not negate the disadvantages of allocating land for disposal purposes only to be subjected to the existing dumping practice.
26. SWM Alternatives at the other end of the SWM technology spectrum include incinerators, pyrolysis chambers (high-temperature incineration in the absence of oxygen) or chemical/biochemical decomposition systems which have begun to establish in the SWM market. These systems are able to support additional to break down or substantially reduce the volume of waste on the Landfill. They also have the capacity to destroy pathogens and render most toxic substances inert. However, most of the modern incinerators are often costly to set up and operate. In addition, ash and other residue from incinerators still require a sanitary landfill for their final disposal. But also the rest should be handled carefully due the possibility of Heavy metal and other hazard ingrediencies. This has been extensively discussed by the GoU and has deemed this alternative not economically feasible so was abandoned.
27. An orderly collection and presorting of domestic waste, bottle deposit systems, reduction in the volume of plastic bags and plastic film, separate collection of organic waste, etc., also contribute significantly to the reduction in waste.
28. Engineered sanitary landfills, on the other hand constitute another type of solid waste disposal system. Landfills store and compress the waste without neutralizing toxins or pathogens, but have in place stronger controls against soil, water and air pollution than dumpsites. Moreover, sanitary landfills allow the recovery of methane gas, a byproduct of anaerobic decomposition of organic matter, which can be used for power generation. Well sited and operated sanitary landfills provide the best option in waste management in view of their relatively low construction and operating costs and the type of wastes they are expected to handle. This can be complemented by waste minimization and recycling strategies which is part of the next phase of the project.

2.8. Description of Any Changes to Project Design

29. Not yet applicable.

2.9. Description of Any Changes to Agreed Construction methods

30. Not yet applicable.

3. ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1. General Description of Environmental Safeguard Activities

31. IEE for project was prepared for SUE Maxsustrans in May 2013 and it was published on ADB's website. All corresponding tasks will be accordingly executed as mentioned in all previous reports further.

3.2. Extent of the IEE Study

32. The IEE report which was prepared in May 2013 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 detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

3.3. LARP implementation

33. For the period of January – June 2018 of the project implementation following issues happened:

- **January 2018:** Consultant with direct support of PIU requested the detailed data from Tashkent Regional Hokimiyat and Hokimiyat of the Akhangaran District on the status of the land acquisition and providing of compensation to the affected person. Period of 16-30th of January, 2018: registration of request, resolution of hokim, distribution to responsible department and assignment of responsible specialists
- **March 2018:** The request is still under consideration of the Tashkent Regional Hokimiyat and Hokimiyat of the Akhangaran District. The problem of the decision to transfer the land from the farmer's side to the Hokimiyat of the Akhangaran district of the Tashkent region is on the final stage of settlement, and preparing the documents confirming the agreement signed between the two parties. Data from the local authorities on this issue are currently not available. The official request which has been submitted in the middle of January 2018 isn't replied in written form until yet.
- **June 2018:** Consultant with direct support of PIU submitted the request to Tashkent Regional Hokimiyat to obtain any addresses / complaints under the project as well as to Hokimiyat of the Akhangaran District to obtain the detailed data on the status of the land acquisition and providing of compensation to the affected person. The requests are registered and under consideration at Hokimiyats. No data are received from the interested authorities until yet.

34. Consultant notes that the interaction with the Hokimiyats is not effective. There is no consideration and provision of information on the submitted requests in time in compliance with the legislation of RUz (15-30 days).

3.4. Site Audits

35. ***Waste collection points.*** The 1000 waste collection points are serving mostly residential areas over 11 districts of the City, especially in high-rise residential clusters. These collection points have to be improved because they are a crucial element of Tashkent's recycling efforts. The waste collection points are able to reduce the volume of waste for collection by manual segregation of recyclables. This system in its simplicity proved to be more efficient. The recyclables are than handled by the informal sector and treated and processed for further use. There are in general two types of waste collection points within the city; these are guarded and unguarded collection points. As shown at the collection points survey, there are 650 guarded and 350 unguarded collection points. Aim of the projects is the increase the total number of collection points within the city as also to convert unguarded points into guarded collection points.
36. ***Waste Collection bins.*** Maxsustrans has right now about 10,000 -12,000 thousand waste bins in operation. The city utilizes mainly open 0.75m3 steel bins as also standard 1.1m3. This kind of bins proofed reliability and sufficiency and served its purpose well. The delivery of additional containers with following quantities as below mentioned has been completed and are in use. 500 pieces of 0.75m3 bins and 8,000 pieces of 1.1m3 bins immediately. It is also recommended to integrate the bins utilized within the city into the above recommended integral logistic software solution, this in conjunction within the waste collection point survey of this project.
37. ***Waste Transfer Stations.*** Maxsustrans operates today three waste transfer station within the vicinity of the city. Original the WB project from 2002 recommended the installation of 4 stations. The current SWMIP Project recommend the main refurbishment of 2 Transfer Station.
38. The initial assessment of the existing waste collection situation and the above discussed charges in the type of vehicles sizes used leads to the conclusion that only two transfer stations would be sufficient to surf the whole city and would also be of economic advantage. It's being considered that the eastern part of the city would be served by the bigger collection trucks which can travel to the landfill at Akhangaran directly. It is currently recommended that the Khamza district transfer station be abandoned. However, the existing stations Yakasaray and Yunusobad need extensive/ fundamental reconstruction overhauling for its buildings, equipment and infrastructure as also for its electro-mechanical components. The system could serve the existing road transport approach as also possible later waste to rail solutions in case of.
39. The utilized transfer system with hook-lift trucks as also the containers need urgent replacement. It ~~is~~ was recommended to purchase a new generation of hook-lift trucks and equip them with trailers. It was further recommended to replace all old waste collection trucks of the City collection. To reach savings by consumption of diesel and reduction of air pollution and CO_2 emissions. This is now ongoing with the realization of Package G_2 "Waste Collection Trucks and Transfer Trucks and Containers".
40. It is recommended a full logistical study on this issue including the implementation and utilization of transport logistics optimizing software because the current route planning for the waste collection trips are estimated partially as insufficient.

3.4.1. Landfill Akhangaran

41. The landfill is located far away from the urban area in the south of Tashkent. The nearest settlements are located 3 km away from the landfill. The landfill covers an area of about 59 ha; it was established in the 70ies. Every day about 1.800 t of waste are entering the landfill.
42. For operating the landfill no compactor vehicles are used (only small bulldozers are used). For intermediate covers of the landfill soil is used. At the moment the soil reserve is exhausted, therefore the last soil layer was processed last year. Normally, after a 2 m-layer of waste a 20 cm soil layer is used for covering the waste.
43. During the site visit, waste pickers are picking out recyclables from the landfill. Approx. 100 waste pickers are working at the landfill (30-40 of them are officially registered as personnel).
44. Several gas wells (~ 42) are located at the perimeter of the landfill. Since 2011 a private company is operating a gas pumping station. The gas (mainly methane) is burned using a gas flare (at the moment the gas flare is under maintenance). The methane concentration was recently measured by a Japanese company (for analyse the waste to energy potential). Acc. to them, the methane concentration is reaching 65%. The daily gas production is estimated with 2.000 standard m^3 gas.
45. Besides the pathway a small channel is collecting accumulated water. There is no leachate collection because no leachate is produced at the landfill.
46. There are no documents demonstrating the operation of the landfill. Acc. to instructions from Maxsustrans, daily reports about waste volume have to be submitted to them. From time to time (no specific interval) personnel from SCEEP is monitoring the labour safety and health/safety conditions. Every 3 months trainings and operating procedures are instructed by the Chief Engineer.
47. The Consultant also asked about any explosions due to small burnings. Acc. to the head of operations there are no explosions occurring because of the open disposal.
48. Small repair and maintenance works are done by themselves; for large repair works they have a service agreement with a Chinese company.

Weighbridge and entrance

Small channel, Run-off water

Waste dumping area

Waste pickers

3.5. Issues Tracking (Based on Non-Conformance Notices)

49. Not yet applicable.

3.6. Trends

50. Not yet applicable.

3.7. Unanticipated Environmental Impacts or Risks

51. Not yet applicable.

4. RESULTS OF ENVIRONMENTAL MONITORING

4.1. Overview of Monitoring Conducted during Current Period

52. 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.

53. Prior to commencement of any construction work, contractors will submit a EMP and compliance report to PIU ensuring that all identified impacts detailed in the environmental assessment have been undertaken. The PIU will review and shall construction works commence.

54. The PIU will 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. A monthly report will be prepared by the PIU summarizing compliance with monitoring requirements, details on any noncompliance, remedial actions taken and additional environmental mitigation measures if necessary.

55. 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.

56. The EMPs indicated that Contractor would be responsible for conduction visual monitoring of above indicated parameters. No more requirements on environmental monitoring were included in EMP and as following in SSEMP. Instrumental monitoring of quality of environment was not conducted.

4.2. Trends

57. Not yet applicable.

4.3. Summary of Monitoring Outcomes

58. Not yet applicable.

4.4. Material Resources Utilisation

59. Not yet applicable.

4.5. Health and Safety

60. Not yet applicable.

4.6. Training

61. 23 April 2018, Mr. Gerald Kurz, Support Expert SWM O&M of consortium GWCC - INTERIVAL ZT GmbH together with UVP Environmental Management and Engineering GmbH, Dohwa Engineering Co., Ltd, and Al Mar Consulting Ltd. who implemented Capacity Development Program of Solid Waste Management Improvement project, present the outline for the Chapter on Waste to Energy in SWM and to have further discussion with Maxsustrans.

62. Mr. Gerald Kurz explained the following issues:

- Available and proven waste incineration technologies in Europe;
- Waste Disposal and Landfill Operations in Europe (risk analyses of existing dump);
- Definition of minimum criteria for requirements of new landfills for: site, technical standards, equipment and operational standards;
- Availability of waste-to-energy plants according to BAT (Best Available Techniques);
- Existing landfill gas extraction for generation of power and heat;
- Potential for Waste to Energy;
- Analyses of waste characteristics for waste-to-energy processes.

63. The list of participants:

Name	Position
Mr. Inogamov	Deputy chief on operation, SUE "Maxsustrans"
Mr. Rakhimov	Chief of O&M, SUE "Maxsustrans"
Mr.Yuldashev	Deputy Chief of O&M, SUE "Maxsustrans"
Mr.Ibragimov	Chief Inspector, SUE "Maxsustrans"
Mr. Mingbayev	Leading safety equipment engineer, SUE "Maxsustrans"
Mr. Ishonkhodjaev	Leading civil protection engineer, SUE "Maxsustrans"
Mrs. Andreychenko	PIU account
Mr. Dilshod Mavlyankariev	Deputy Team Leader, PIU support consultant
Mr. Tairjon Kabashev	Financial management specialist, PIU support consultant
Mr.Toir Khaydarov	Procurement, PIU support consultant

64. From 24.06. until 29.06. two staff members of Maxsustrans, Mr. Muzaffar Mansurov and Mr. Takhir Nurbaev are participants on a Seminar with site visits "Waste to Energy" in Austria – Vienna.

4.7. ADB Mission

65. ADB mission took place from 5-12 March 2018. A project review mission (the Mission)[1] of the Asian Development Bank (ADB) for the Solid Waste Management Improvement Project (the Project) visited Tashkent, Uzbekistan from 5-12 March 2018. The main objectives of the Mission were to review and confirm with the Government of Uzbekistan: (i) the key project implementation issues, (ii) project implementation schedule and procurement plan, (iii) contract awards and disbursements (CAD) targets, (iv) loan covenants, and (v) Project Administration Manual (PAM).

66. The Mission visited the sanitary landfill site and waste transfer stations, conducted meetings with the State Committee for Investment (SCI), the State Committee for Ecology and Environmental Protection (SCEEP), Ministry of Finance (MOF), the Ministry of Economy (MOE), Tashkent City Hokimiyat (Tashkent Municipality), State Unitary Enterprise "Maxsustrans" (Maxsustrans) and Project Implementation Unit

[1] The Mission comprised Ruoyu Hu, Urban Development Specialist, CWUW (Mission Leader); Lu Shen, Unit Head, Portfolio Management, CWUW; Charles Felix Simbillo, Associate Project Analyst, CWUW; Doniyor Mukhammadaliyev, Social Sector Officer, URM; Feruza Insavalieva, Associate Project Analyst, URM; and Umida Rasul-Zade, Operations Assistant, URM. Hidemasa Fukuda, Director's Adviser for Japan, joined the Mission 6-12 March.

(PIU). A wrap-up meeting with Tashkent Municipality, Maxsustrans, and PIU was held on 12 March 2018. This Memorandum of Understanding (MOU) summarizes the findings, recommendations, and key agreements reached by the Mission, which are subject to further confirmation from the higher authorities of the Government of Uzbekistan and ADB.

67. The Mission reminded Maxsutrans that the design, construction, and operation and maintenance of the facilities under the project should be carried out in accordance with ADB SPS, 2009, applicable laws and regulations of Uzbekistan, and recommendations of the IEE and its EMP, though the civil works have not started yet. Maxsustrans assured the Mission that potential adverse environmental impacts arising from the project are minimized by implementing all mitigation and monitoring measures as presented in the EMP of the IEE. If necessary changes should be made in the project design, the updated IEE will be prepared and all necessary government permits and licenses, including ecological expertise opinion, to construct the sanitary landfill facility will be obtained prior to commencing SLF civil works. Baseline environmental measurements will be carried out by the contractor before commencement of the civil works. The Quarterly EMR for January-March 2018 have been submitted and disclosed on ADB's website.

5. FUNCTIONING OF THE SEMP

5.1. SEMP Review

68. SSEMP for the project "Solid Waste Management improvement Project" will be prepared by Environmental Specialist of construction company immediately after commencement of the civil works. SSEMP will be approved by PIU, after which construction company can start construction activities.

6. GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

6.1. Good Practice

69. Not yet applicable.

6.2. Opportunities for Improvement

70. Not yet applicable.

7. SUMMARY AND RECOMMENDATIONS

7.1. Summary

71. Until the construction works haven't been started monitoring of this issue can be suspended.
72. The preparation of the quarterly environmental reports will continue but all items / paragraphs which haven't changed or developed will not repeated as in the Bi-Annual Report.
73. The Environmental Monitoring Reports will be posted on Maxsustrans website as before.
74. The next environmental monitoring report will be submitted to ADB in September 2018.

Annex 1 Environmental Management Plan

Sources of Impact	Impacts	Type / Degree of Effect	Mitigation / Enhancement Measures	Institutional Responsibilities	Cost
Pre- Construction Phase					
Land Acquisition	Loss of Agricultural Land	Significant and Long Term	• Proper appraisal and timely compensation as defined in the LARP. • 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.	PIU, PIU consultant	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, PIU consultant	Own resources, Consultant remuneration
Construction Phase (Construction of the landfill and its auxiliary facilities)					
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	Contractor/ PIU Consultant to monitor for compliance and reporting to PIU/ SCEEP (State Committee on Ecology and	Include such measure in the Contractor's TOR

			similar materials / application of slope stabilization materials • Establish buffer zones and fences	Environmental Protection	
	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 / PIU Consultant to monitor for compliance and reporting to PIU / 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 design.	Contractor / PIU Consultant to monitor for compliance and reporting to PIU / SCEEP	Include such measure in the Contractor's TOR
	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 / PIU Consultant to monitor for compliance and reporting to PIU / 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 / PIU Consultant to monitor for compliance and reporting to PIU	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 • 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.	Contractor / PIU Consultant to monitor for compliance and reporting to PIU	Include such cost / measure in the Contractor's contract
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,	Contractor / PIU Consultant to monitor	Include such cost / measure in the Contractor's contract

			clean-up of spills, well visible signage, awareness-raising)		
	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.	PIU, PIU consultant	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 / PIU Consultant to monitor for compliance and reporting to PIU / SCEEP Post closure management shall be handled by the IA / PIU	Include such cost / measure in the Contractor's contract
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	PIU and PIU Consultant for monitoring	Cost should be included in the operating budget

			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.		
	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	PIU Consultant, PIU and SCEEP for monitoring	Cost should be included in the operating budget

			promote evapo-transpiration and re-direct portions of the precipitation.		
	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 Consultant, 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 site. A traffic circulation plan should be developed not to hamper the traffic flow.	PIU Consultant, PIU for monitoring	Cost should be included in the operating budget
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	PIU, SCEEP for monitoring	Included in the operating budget
	Health & Safety	significant, permanent and long	• Training for personnel pertinent to	PIU Consultant, PIU/	Included in the

		term	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	SCEEP for monitoring	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 • Ensure that leachate and other spills are properly collected and not disposed in sensitive areas • Water usage shall be monitored.	PIU 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