JICA Project Brief Note

Zambia
Lusaka Clean City Project

-Aiming to achieve a clean city by supporting the establishment of a newly created waste management company-

Apr. 2025

Improvements are progressing at the Chunga Landfill.

1. Progress of the Project

The Lusaka City Clean City Project in the Republic of Zambia (hereinafter referred to as 'Project') was launched in April 2022. The project consists of two phases: a detailed planning phase and an implementation phase.

The detailed planning phase ran from April 2022 to August 2023, during which a survey of the current state of waste management in Lusaka City was conducted, including information collection and waste amount and composition survey. Based on the results of this survey, a specific implementation plan for the Project was formulated.

The primary objective of this project is technology transfer to the Lusaka Integrated Solid Waste Management Company (LISWMC). However, the recruitment of staff for LISWMC was delayed. From September 2023 to March 2025, activities were scaled back during the 19-month recruitment monitoring period, during which remote support was provided for LISWMC's regular operations and the Chunga emergency rehabilitation project led by the Zambian government. Following the completion of staff recruitment for key positions at LISWMC, the Project was fully resumed in April 2025.

2. Results of the Surveys

1) Estimation of Waste Generation Rate

According to the waste amount survey, the average household waste generation per person was 0.49 kg/person/day for the high-income group, 0.59 kg/person/day for the middle-income group, and 0.49 kg/person/day for the low-income group. These figures were weighted by economic class population ratios to obtain an average household waste generation rate of 0.53 kg/person/day for Lusaka City residents. Furthermore, assuming a 7:3 ratio of household waste to commercial waste in municipal waste, the average municipal waste generation rate per resident was calculated as 0.76 kg/person/day.

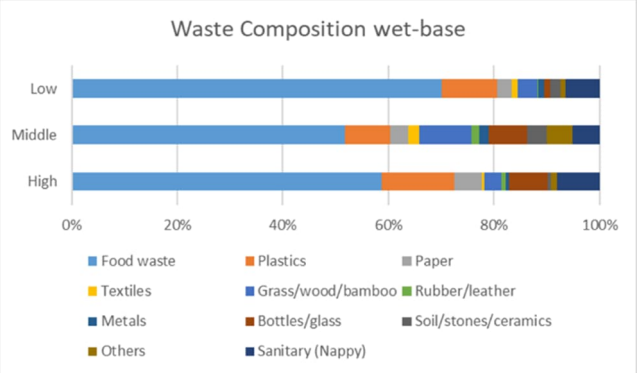
Table: Estimated Waste Generation Rate

Category	Percentage (%)	Kg/person/day
Households	70	0.53
Businesses	30	0.23
Municipal waste	100	0.76

Municipal waste = Households waste + Business waste

2) Waste Composition

Food waste exceeded 50% in all economic classes, with low-income households showing the highest rate at approximately 70%. Plastic accounted for approximately 15% in high-income households and approximately 10% in middle- and low-income households. Disposable nappies accounted for a significant proportion (5-8%) in all economic classes.



3) Public Opinion Survey

A survey was conducted to assess residents' awareness of waste management in urban and peri-urban areas, which differ significantly in terms of economic conditions and infrastructure.

- In urban areas, awareness remained at just over 10%, whereas in peri-urban areas, waste was perceived as the most serious problem alongside drainage, with approximately 25% of people citing it as such.
- In urban areas, 86% of people use collection services, whereas in peri-urban areas, this figure is 55%. Less than 1% of people in urban areas use illegal operators despite knowing they are illegal, whereas 61% of people in peri-urban areas use illegal operators despite knowing they are illegal.
- 34% of people in urban areas and 27% of people in peri-urban areas reported sorting recyclable waste. Among these respondents, 63% in urban areas reported handing waste over to the informal sector, while 48% in peri-urban areas reported burning it.
- 31% of people in urban areas and 10% of people in peri-urban areas reported composting. Additionally, all households that answered 'Yes' reported using the compost for vegetable gardening or other gardening activities at home.

4) Disposed Waste Amount

The weighbridge data at the Chunga Landfill was analysed. The results are shown in the table below. A total of 338 tonnes of waste was delivered daily. The breakdown was as follows: CBE (Community Based Enterprise), FC (Franchise Company), and LCC (Lusaka City Council) each accounted for approximately 30%, and Private accounted for 10%.

Table: Amount of Waste Disposed at Chunga

Item	ton/year	ton/day	%
CBE	32,491	89	26%
FC	41,869	115	34%
LCC	35,356	97	29%
Private	13,456	37	11%
Total	123,172	338	100%

Photos: Weighbridge at Chunga

5) Waste Flow

The current waste flow was estimated using data from Waste Amount and Composition Survey, Public Opinion Survey, and Weighbridge Data at Chunga Landfill. Total waste generation was estimated at 1,667 tonnes per day. Of this, 244 tonnes per day were self-disposal at source (including recycling), 1,423 tonnes per day were disposed of, 1,023 tonnes per day were collected, and 338 tonnes per day were disposed of at Chunga Landfill. Destination of 1,085 tonnes per day of waste is unknown. This high volume of unknown waste is estimated to include waste that has been illegally dumped in unauthorised sites or waterways within the city, as well as waste that has been disposed of at Chunga Landfill outside of operating hours or by vehicles that did not pass through the weighbridge.

Figure: Estimated Waste Flow

3. Activities during the Monitoring Period

A 19-month monitoring period was established from September 2023 to March 2025 to oversee staff recruitment, during which project activities were scaled back. However, the situation at Chunga Landfill has significantly improved thanks to the emergency improvement works initiated by the Ministry of Local Government and Rural Development (MLGRD) and the procurement of heavy machinery through Japanese grant aid. Additionally, a Japanese expert team (JICA Expert Team, JET) maintained remote communication with local counterparts and provided logistical support for these construction projects and equipment procurement.

Before, April 2023	After, November 2024
	
	
	

Photos: Emergency Improvement Works at Chunga


Photos: Equipment procured by Japanese Grant Aid

4. Future Activities

The main activities planned from April 2025 are as follows.

- Improvement of Collection Service
- Improvement of Final Disposal Operation at Chunga
- Establishment of Data Management System

1) Improvement of Collection Service

The target areas are the Central Business District (CBD), the peri-urban area (Kanyama) and the urban area. LISWMC will operate directly in the CBD, CBE will collaborate in the peri-urban area and FC will collaborate in the urban area. These activities are referred to as pilot projects and aim to improve collection services in each area as a model for future expansion across Lusaka city. Improving waste disposal in the peri-urban area is crucial for addressing poor sanitation and the spread of infectious diseases such as cholera. This has been a long-standing challenge. The project will attempt to establish a system for reliably transporting waste from the peri-urban area to Chunga Landfill by setting up small transfer stations.


Small collection equipment


Small transfer station

Photos: Examples for Peri-urban Area

2) Improvement of Final Disposal Operation at Chunga

The emergency improvement works have been carried out at Chunga Landfill and new equipment has been acquired. Preparations are now complete to begin improving operations in the site. However, despite ongoing dialogue with LISWMC, issues with waste pickers persist, resulting in accidents such as falling from collection vehicles and collisions with heavy machinery. There are also ongoing problems with the proper weighing of vehicles delivering waste. The project aims to improve daily waste disposal, mitigate the risk of landslides by flattening steep slopes and separate waste pickers from disposal operations. Furthermore, improvements to the operation and maintenance of the heavy machinery that is essential for landfill operations are planned.

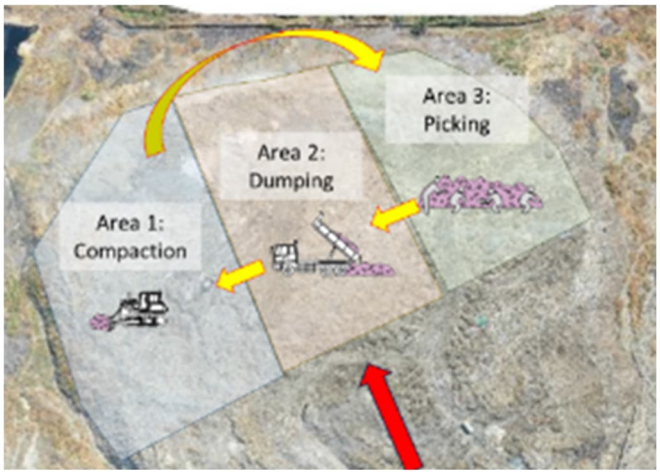


Figure: Separation of Waste pickers from the Operation

3) Establishment of Data Management System

Build a system that integrates data of waste collection, transportation and waste disposal to support LISWMC's waste management decision-making processes. The main activities are as follows:

a. Introduction of a digital payment system

b. Introduction of an automatic weighing system

c. Utilisation of collection service data

d. Improvement of the accounting system

e. Construction of an information integration system

a. Introduction of a digital payment system

Introduce an application with functions such as registering customer data, paying fees and handling complaints, and use it to improve collection services.

b. Introduction of an automatic weighing system

Although the recording of waste brought to Chunga Landfill is partially automated, much of it is still done manually. This is time-consuming and prone to errors. To reduce human error, improve efficiency and enhance data accuracy, the weighing process will be automated.

c. Utilisation of collection service data

Currently, several LISWMC collection vehicles are equipped with GPS, but this information is not being fully utilised. The aim is to provide collection services in accordance with collection plans and improve the efficiency of collection work. This information will also be used for waste management information collection and analysis, by integrating it with measurement and customer data.

d. Improvement of the accounting system

LISWMC charges FC and others based on measurement data at Chunga Landfill. However, some charges cannot be applied due to input errors at the site. As expenditures are not aggregated by business area, such as collection services and landfill operations, it is not possible to determine the costs incurred by each business.

e. Construction of an information integration system

To support LISWMC management, a system that integrates and analyses data of customer, collection operation and waste disposal will be build.

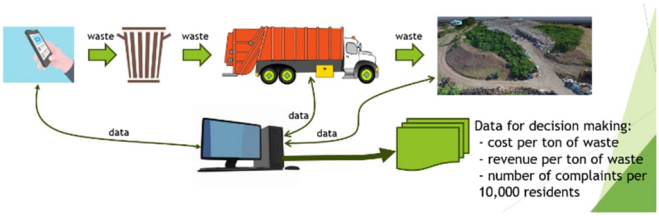


Figure: Image of Data Integration

4) Other Activities

In addition to the above activities, which are mainly conducted in the field, the following will be implemented:

- Preparation of a national waste management master programme
- Revision of a waste management improvement plan for Lusaka City (2027–2030).
- Sharing the results of this project with other Zambian municipalities and at international conferences.