

4 Activities related to Output 2 (Management capacity for solid waste collection and transport is improved and its basic method is established)

Apart from frequency, around 30% of households in both urban and peri-urban areas sort their recyclable waste, not necessarily for money, but to hand it over to the informal sector. It can be assumed that this is due to the consideration for vulnerable groups in Zambian society. The pilot project will look deeper into this area and consider what triggers are available and how to utilise them to promote recycling, so that they can be put into practice.

As can be seen from the WACS results, the majority of Lusaka's waste is organic. On the other hand, the POS results show that composting is quite widespread, especially in urban areas where there are many dwellings with large plots of land, which suggests that the spread of urban agriculture using composting in urban areas is effective in reducing the volume of waste.

c. WACS findings**c.1 Survey overview**

In May 2023, a Waste Amount and Composition Survey (WACS) was conducted for household and commercial waste. For household waste, a total of 90 households, 30 from each economic stratum, i.e. high (Kablona district), middle (Nyumba Yanga district) and low (Kanyama district) income, were sampled for one consecutive week.

The population ratios for the economic strata were established from existing data as follows.

Table 4-9: Population setting by economic strata in Lusaka

Area	Income	%	Persons
Urban	High	30	660,000
Peri-urban	Middle	45	990,000
	Low	25	550,000
Total		100	2,200,000

Source:

2022 Census Preliminary Results

70% is living in the peri-urban area. (MCA Tec.31, p.22)

Extremely poor 11.50%, Moderately poor 12.90%, therefore 25% is made as a cut-off point for cross-subsidy. (MCA Tec.31, p.24)

c.2 Main findings**c.2.1 Results of waste amount survey**

The results of the waste amount survey are presented below. The average amount of household waste generated per capita was 0.49 kg/person/day for high income, 0.59 kg/person/day for middle income and 0.49 kg/person/day for low income. These values were weighted and averaged based on the population ratio by economic class to obtain a generation rate of household waste per capita of 0.53 kg/person/day for the city of Lusaka. Furthermore, the ratio of household waste to business waste in municipal waste (UN-Habitat, Waste Wise Cities Tool, p.43) was used to obtain a generation rate of municipal waste per capita of 0.76 kg/person/day.

4.1 Based on the results of Output 1, select pilot areas and conduct detailed cost analysis (Activity 2-1)

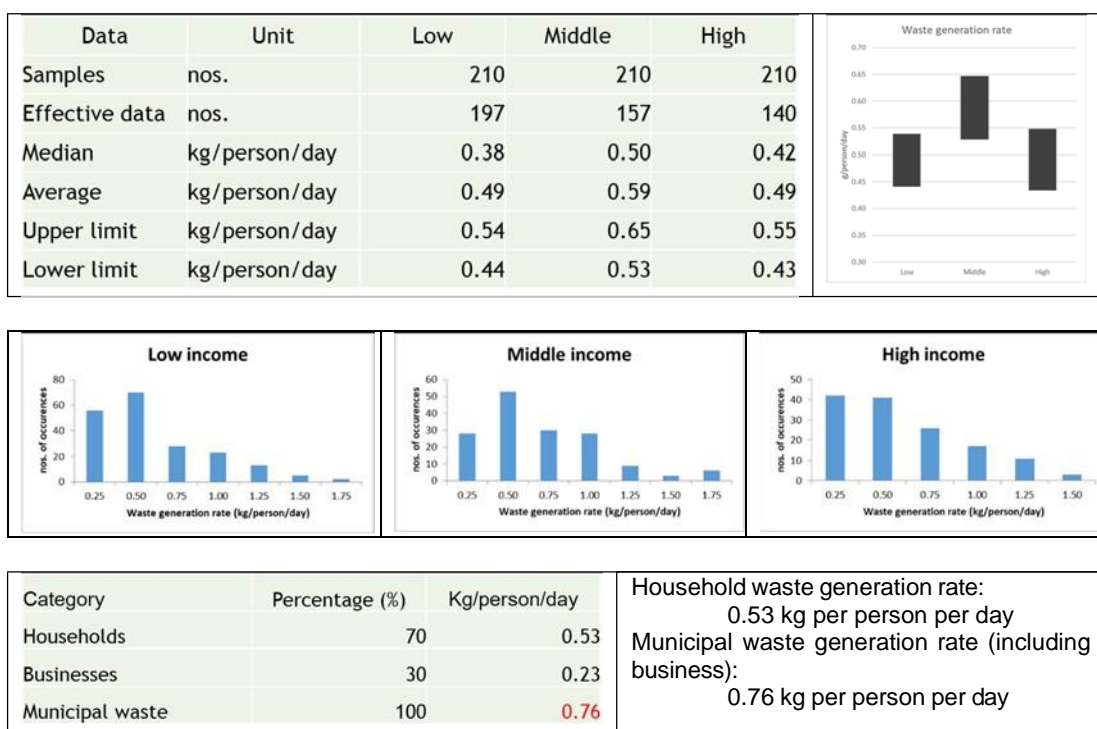


Figure 4-5: Main results of the waste amount survey

c.2.2 Waste composition survey results

The results of the waste composition survey are presented below. A large difference in bulk density was observed, with 0.20 kg/l for high-income households and 0.35 kg/l for low- and middle-income households. With regard to waste composition, kitchen waste exceeded 50% in all economic groups, but the rate was higher in low-income households at around 70%. Plastics accounted for about 15% in high-income households and 10% in low and middle-income households. The percentage of disposable diapers was not small (5-8%) in each economic group.

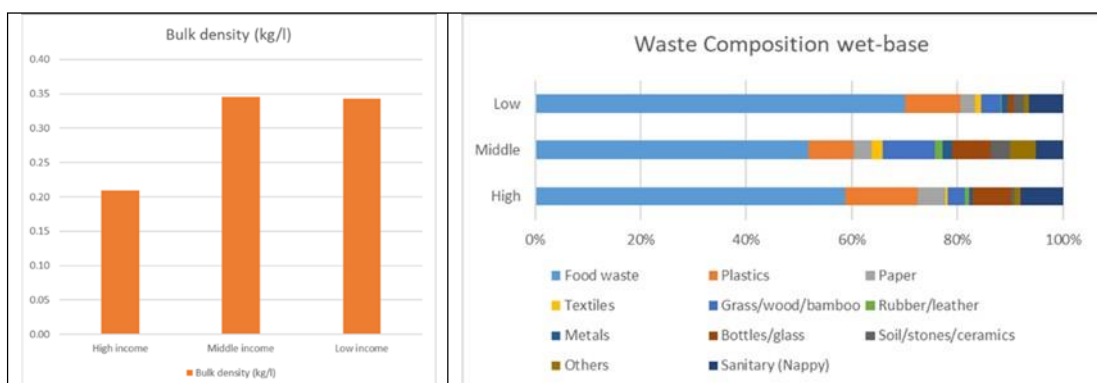


Figure 4-6: Main results of the waste composition survey

c.3 Considerations

With regard to the amount of waste, before the survey, it was expected that the waste generation rate would be higher in the high-income group, but the results were the same as in the low-income group and lower than in the middle-income group. The C/P explained that the waste generation per capita was probably lower because many people of the high-income group

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are away from home during the day for work or school and often eat out, and many of them also go to other cities in the country or abroad.

Bulk density is smallest for high-income households, presumably due to the high proportion of plastic and paper. As all economic groups have a high proportion of kitchen waste, it is inferred that the introduction of composting is effective in reducing waste amount.

The survey was conducted by LISWMC staff, partly to strengthen the capacity of LISWMC. Although some confusion was observed at the beginning, the survey was generally conducted well and the survey methods were learnt. With regard to the samples, there were some cases in the high-income group with high contracting rates for the collection service, where the collection service provider collected the waste before the sample was collected for the survey, resulting in a small number of valid samples in the high-income group. Based on these lessons learned, it is recommended to continue to conduct WACS regularly in the future to continuously improve the reliability of data and the capacity of staff.

4.1.3 WMD (Waste Management District) rezoning

With regard to the contracts with FCs and CBEs, which are due to expire progressively from September of this year, LISWMC has established the following three policies:

- In the Central Business District (hereinafter referred to as “CBD”), collection and transport will be directly managed by LISWMC. A new ward allocation will be considered for this CBD and the surrounding WMD.
- WMDs that are considered to have a population too large or too small will be set to an appropriate size for collection service operations.
- Eliminate vague boundaries.

As the CBD is also a potential pilot project site, the rezoning of the CBD was carried out under Activity 2-1.

Originally, to determine the delimitation of WMDs, it is necessary to understand, analyse and consider various factors, such as the amount of waste generated and the distance to the disposal site, but in order to review the zoning in the short period of time until September, it was decided to use the limited information shown below.

Table 4-10: Requirements for changes to waste management zones

Requirement	Reason
Has more than 700 buildings (premises).	It was set as the minimum number of customers required for the FC/CBE to be sufficiently profitable.
Has both residential and commercial areas.	It was decided to include commercial areas as it was considered that residential areas alone would not generate sufficient revenue.
Area is not too large.	Moving around for collection takes time in WMDs that are too large.
Boundaries are set on major highways and rivers.	Major highways and rivers are used as boundaries so that everyone can easily identify the boundaries.

The results of the delimitation of wards to meet the above requirements are as follows.