Monitoring Waste SDGs in Kathmandu: A Need for Standardised Methods

Cities in the global south suffer from poor and unreliable waste data. This has severe consequences on investment plans. By agreeing to fulfil the SDGs, countries need to report on their waste situation. However, robust methodologies to obtain this data are currently lacking.

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Introduction

Municipal solid waste (MSW) management is key to the Sustainable Development Goals (SDGs) and several indicators relate to waste management. This exercise assessed and compared our own data with data from 2012 provided by the authorities of Kathmandu Metropolitan City (KMC) for indicators 11.6 (city collection and disposal rates) and 12.5 (national recycling rate).

Waste management in KMC

KMC, with a population of 1 003 285 [1], has unsystematic and unsustainable collection and disposal methods. An estimate of the total generated MSW is based on a domestic waste survey conducted with 200 households on a single day. The average generation rate of domestic waste is 233.2 g/d/cap, which amounts to a total generation of 233.1 t/d in the city [2]. KMC authorities assume that this represents 50 % of the total MSW, and commercial and institutional waste comprises the remaining 50 %. The authorities claim that the city generates 466 tons/day of MSW, with a collection rate of 87 % and a 20 % recycling rate [3].

The transfer station receives around 295 t/d from the public waste collection service; 110 t/d and around 108 t/d is transported to the landfill by a door-to-door service and private haulers repectively, and around 1.7 t/d of biowaste is composted. Approximately 114 t/d of recyclable materials is recovered by 660 informal scrap dealers [4]. This amount is not included in the KMC waste collection data.

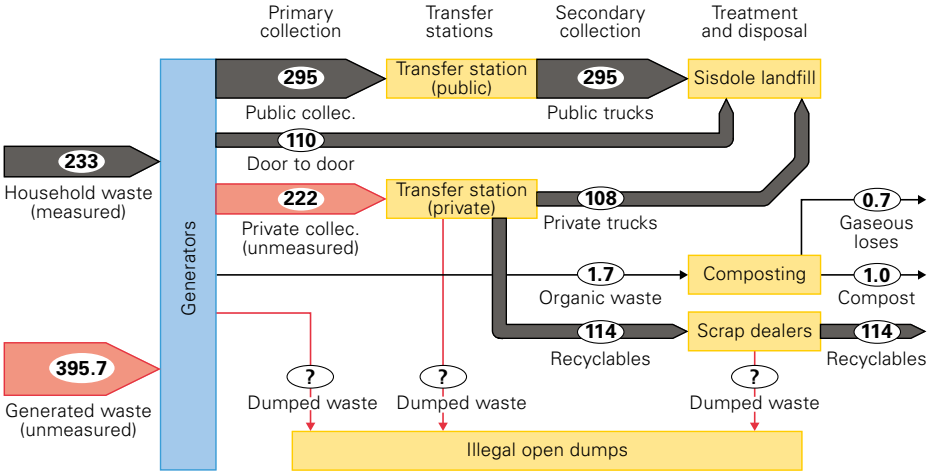

Figure 1: Material flow analysis of waste in KMC.

The material flow analysis (MFA) (Figure 1) shows the waste flows with those partially measured or unmeasured flows depicted in red. Based on the MFA and a mass balance approach, the total generated MSW in KMC is roughly 630 tons/day, 35 % higher than the officially reported number. This, however, is a low estimate as littering and illegal dumping is not included.

Table 1 shows how the SDG indicators 11.6 and 12.5 would change if, based on our estimates, other waste generation amounts are used. Scenario A shows the mass flows as shown in Figure 1, and Scenario B assumes a 10 % higher waste generation amount to account for waste littering and dumping (before collection). As shown in Table 1, the total generation rate estimated by KMC is most likely too low, mainly due to not considering the informal recycling and ignoring littering. Scenario B most likely provides a more realistic picture, although the exact amounts littered and dumped remain unknown.

Conclusion

SDG performance depends on sound data, but methods to obtain city waste data are lacking. In addition, using unreliable data is problematic as it impacts investment plans. We promote the development of methodologies for measuring waste related SDG indicators, such as a systematic MFA. This would also allow for comparable assessments over time to show improvements in performance, as well as comparisons between cities and countries.

		Scenario A		Scenario B		Official figures	
		Tons	*Rate (%)*	*Tons*	*Rate (%)*	*Tons*	*Rate (%)*
Total MSW generation		628.7		691.6		466.0	
Indicator	***Sub-indicator***						
SDG 11.6	Collection	628.7	100 %	628.7	91 %	405.0	87 %
	Safe disposal	513.0	82 %	513.0	74 %	513.0	110 %
SDG 12.5	Recycling	115.7	18 %	115.7	17 %	?	20 %

Table 1: SDG indicator scoring and its variations per scenario.

[1] Statistical Yearbook of Nepal (2013).
[2] Magar et al. (2012): Report of SWM Baseline Study in Kathmandu Municipality.
[3] Asian Development Bank (2013): SWM in Nepal: Current Status and Policy Recommendations.
[4] Pathak, D. R. (2013): Recycled Materials from Solid Waste Stream in Kathmandu Valley.

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