

Analysis of Household Waste Generation and Composition in Mandalay: Urban-Rural Comparison and Implications for Optimizing Waste Management Facilities

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Abstract:

Data on waste generation and composition are fundamental for effective waste management and vary over time. Assessing the allocation of waste management facilities is also important to improve the entire waste management system, including land management. A survey conducted among 108 households in both urban and rural areas across six townships analyzed the waste generation and physical composition in Mandalay, highlighting the current waste trend. Concurrently data on current waste management facilities were gathered. The average waste generation is 0.84 kg/person/day, with urban areas producing 0.91 kg/person/day and rural areas 0.37 kg/person/day. The study per capita waste generation rate exceeds that of most previous studies conducted in Mandalay up to 2020 as well as the national average and that of most cities in Myanmar. Organic waste constitutes most of the physical composition, accounting for 82.3%, followed by plastic waste (10.7%), paper and cardboard (3.2%), glass (0.9%), metal (0.8%), leather and fabric (0.4%), and other wastes (1.7%). Rural areas produce a higher percentage of most types of waste compared to urban areas, except for organic waste. Surprisingly, urban areas have a higher composition of organic waste than rural areas. The percentage of organic waste is also higher than in previous studies conducted in Mandalay and other cities. Proper management of organic waste could significantly reduce the burden on waste management. In order to achieve this goal, this study proposes several viable strategies for optimizing solid waste management in Mandalay. The current location of waste management facilities reflects the efficiency of waste management and accessibility. However, there are concerns about this and improvements are necessary. This can be achieved by optimizing the placement of waste management facilities and enhancing the efficiency of the collection and transportation sector.

Keywords:

Waste characterization; waste management facilities; facilities location optimization; organic waste.