

**Residential solid waste generation and their relationship
with the socio-economic conditions at Seethawaka divisional
secretariat area of Colombo district**



BY

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ABSTRACT

Solid waste has become a critical issue with rising population, urbanization and economic activities, especially in urban centres creating a negative impact on environment due to inappropriate handling of municipal solid waste. Solid waste management (SWM) is a multidimensional challenge faced by urban authorities, particularly in developing countries like Sri Lanka. An essential preliminary step in municipal solid waste management (MSWM) is the accurate determination of the quantities and composition of the wastes. Analysis of the quantity and composition of municipal solid waste (MSW) is fundamental for the planning of municipal waste management services. Therefore, the aim of this study was also to evaluate residential solid waste generation, its composition, and the methods of waste disposal adopted in the Seethawaka Secretariat Area of Colombo district. This survey covered 150 households with varying socio-economic levels, including differences in income levels and family sizes. Six components of solid waste were evaluated in this study, namely food waste, paper, polyethylene, plastic, glass, and metal.

The volume of solid waste generated in the Seethawaka Divisional Secretariat area is reported to be approximately 30-40 tons per day. A man (or any individual) would generate approximately 0.39 kg of food waste per day. The total waste generation per person per day is found as 0.43 kg. Food waste accounts for nearly 90% of the total waste generated. For food waste, average waste generation, polythene with the number of household members were shown statistically significant relationship ($p < 0.01$). The Pearson correlation coefficient ($r = 0.488$, $p < 0.01$) indicates a positive correlation between the number of household members and the amount of waste generated monthly. Higher income is strongly associated with increased food waste and overall waste generation. Paper and polythene waste in relation to monthly income show weaker correlations (r around 0.260 to 0.276) with the p value of ($p = 0.068$ to 0.053). Nearly half of the population uses old buckets for waste collection, making it the most common method. Burning is the most prevalent waste disposal method, indicating a potential area for intervention due to environmental and health concerns.

The study findings indicate that the overall socio-economic condition of the residential area significantly influences the higher percentage of the organic component in the waste. Additionally, the study underscores the necessity for increasing awareness among households to encourage active participation in solid waste management, thereby contributing to environmental protection.

Keywords: Socio-economic condition, Solid waste, waste management,

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