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# Composition of solid waste in thirty three local government authorities in Sri Lanka

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Waste composition analysis is an internationally recognized approach to collect data to help inform decision makers, improve the waste management service and to develop an effective waste management strategy for a given region. Past research has shown that the amount of waste generated is proportional to the population and the average mean living standards or the average income of the people in addition to many other socio-economic factors.

This paper presents the findings of a study carried out in 33 municipal areas in Sri Lanka from June 2009 to May 2010 to determine waste composition within a week based on field work. The objectives of the study were to determine the aggregate composition of solid waste stream of each municipality and to assess levels of recyclables and bio degradable waste. In order to collect the data, waste was unloaded as a single pile and mixed well. If waste load was more than one ton, mixed waste was divided into several piles of approximately one ton. The composite sample was obtained from randomly selected different points of the waste pile, three composite waste samples were collected from one waste pile, followed the same procedure for other waste piles of one tone each that were prepared earlier. Each collected sample was weighted and mixed together. Then the mixed waste sample was separated into its components as bio degradable (short term), bio degradable (long term), polythene, plastics, glass, paper and cardboard, metal (tin), and others (textile, leather, shoes, ceramic and stone). Thereafter each part was weighted separately and noted clearly. Collected data was analyzed.

The percentage of waste materials in all waste streams, of which the waste composition study was done was found in the following order Bio degradable (short term) > Bio degradable (Long term) > polythene > others > card board > Plastic > paper > glass > metal. The largest fraction of the waste consists of organic matter in all the studied samples. The highest bio degradable (short term) waste was recorded in Kuruvita Pradeshiya Sabha (81.62%). The lowest biodegradable (short term) was recorded in Kaduwela Pradeshiya Sabha (50.94%). The highest non bio degradable recycling materials were recorded in Kaduwela Pradeshiya Sabha waste stream followed by polythene (5.58%), plastics (2.29%), card board (5.1), paper (7.07%), metal (tin) (2.52%) and glass (3.70%). Lowest non bio degradable recycling materials percentage was recorded in Mathara Pradeshiya Sabha's waste stream (1.8%). Ella Pradeshiya Sabha had the highest of non recyclables which was coming under the "others" category, 8.63%. It included cloth, leather, rubber, building materials and stone, sanitary napkins, hair and some of medical wastes. It can be directly used for landfilling. The long term biodegradable solid waste percentage ranged from 2.37% to 16.52%. The findings show that the bio degradable materials range between 50.94% - 81.62% which is a good source for the compost and non biodegradable recyclable materials range between 9.90% - 27.05%.

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