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Plastic waste management strategies in Sri Lanka: Kandy and Colombo municipalities

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Plastic waste is a growing issue in Sri Lanka and has much room for improved management strategies. To implement proper plastic waste management, it is important to identify the plastic content present in a waste sample, the composition of plastic waste types and people's perspectives on this. This study was aimed to analyze plastic waste composition at household level and municipal level as well as to select suitable plastic waste sorting techniques for different plastic waste management strategies. Data were collected from the Kandy (KMC) and Colombo (CMC) municipalities to analyze people's perspectives on plastic disposal practices and to investigate the different plastic types (Polyethylene Terephthalate (PET), High Density Polyethylene (HDPE), Polyvinyl Chloride (PVC), Low Density Polyethylene (LDPE), Polypropylene (PP), Polystyrene (PS) and other) included in a plastic waste sample. Based on the responses of the selected households, KMC waste collection service was more satisfactory in comparison to the CMC. The most abundantly used plastic types in household level were LDPE, PET and PS while the plastic types in a plastic waste sample analyzed at the waste collection sites of the municipalities showed similar abundance. A SWOT analysis was conducted on a selected set of plastic waste sorting techniques; manual sorting, density separation, air classification, electrostatic separation and sensor-based sorting. A questionnaire survey based on increased number of households in KMC and CMC is necessary to get the people's perspective precisely. Plastic waste composition at the household as well as municipal level should be investigated weekly or monthly to get the temporal variation of plastic waste generation.

Keywords: Plastic waste, Composition, Disposal, Management, Sorting techniques