

CE.ENG.2

AN ASSESSMENT OF SOLID WASTE MANAGEMENT IN SRI LANKAN MUNICIPALITIES - A CASE STUDY FROM THE KANDY MUNICIPAL COUNCIL

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Solid Waste Management (SWM) is a multi-dimensional problem faced by most of the municipalities in Sri Lanka. Haphazard solid waste disposal causes numerous complications such as social, environmental, health and economical problems etc.. Municipal Solid Wastes (MSW) is the refuse which are generated after the consumption of useful goods. According to recent studies, the current urban MSW generation in Sri Lanka is increasing rapidly.

For this case study, the Kandy municipality was selected, Kandy being the hill capital in Sri Lanka and one of the most populated and important historical cities in the country. The final solid waste disposal site of the Kandy Municipality is located at Gohagoda where the site is managed as a controlled tipping landfill. The SWM in the Kandy Municipal Council (KMC) was studied under three major aspects; Collection, Transportation and Final Disposal. Preliminary data collection, revealed that collection and transportation were at a satisfactory level. However, the final disposal of solid waste had considerable issues. A questionnaire survey was conducted to assess current practices and public opinion on waste segregation and on-site composting.

The questionnaire survey revealed that 60% of people handed over their waste to municipal council collectors, 70% are willing to cooperate with waste segregation and 58% do not like on-site composting. Based on the questionnaire survey, several recommendations were made to address the identified issues of SWM in the KMC. One of the major environmental issues at the Gohagoda disposal site is the contamination by leachate of the Mahaweli River. As an alternative solution for leachate treatment, a bio-brush medium leachate treatment plant was proposed. Assuming 70% of Biological Oxygen Demand (BOD) removal efficiency by the bio-brush leachate treatment plant at the first stage, a constructed wetland was proposed as the best low cost solution for the secondary stage by using the abandoned sewage treatment pond system at the site. It was anticipated that leachate can be treated to an acceptable level corresponding to ambient water quality standards. After implementation, proper performances should be guaranteed with proper monitoring, testing and maintenance procedures.