

# **FACTORS TO BE CONSIDERED IN THE DESIGN OF AN INTEGRATED MUNICIPAL SOLID WASTE MANAGEMENT IN THE ACCRA METROPOLIS**

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## **ABSTRACT**

Accra, like most large cities in low-income economies is experiencing growing municipal solid waste (MSW) management problems. Although city and municipal authorities are in a continuous search for solutions to these problems, baseline data on waste stream characteristics are either scanty and therefore inadequate for use in planning or simply non-existent. This study was therefore designed in response to the increasing need for reliable and up-to-date data on Municipal Solid Waste stream characteristics, for use in drawing up solid waste management programmes in the Accra metropolis. The study employed three methodologies; waste stream analysis, administration of questionnaire and focus group discussions as well as laboratory analysis. During the waste stream analysis, the city's main residential areas were zoned into three identifiable waste districts with unique waste streams. The urban solid wastes were then characterized into components, whose mean waste stream percentage composition were 60% organic component, 11% residue or inert materials, 8% paper and cardboard, 8% plastics & rubber, 4% textile, 3% metal & cans, 2% glass and 2% miscellaneous or other wastes. The proportions of management categories were also in the range of 42-44% of compostable waste, 1-8% non-compostable waste, 39-45% combustible waste and 5-10% non-combustible waste. The questionnaire and focus group discussion revealed information on household population characteristics and enlistment of public participation in waste management respectively. Based on the questionnaire, the study sought to explore the population structure such as age distribution and gender and the extent to which these population factors influence the generation of solid waste. The bulk density of the solid waste was between 0.4-0.5kg/m<sup>3</sup>. The laboratory

component of the study investigated some physical and chemical qualities of municipal solid waste that serve as proxy indicators of the most ideal management options to use for a given waste stream. These attributes include C/N value, moisture content and the calorific or gross energy contents of the waste. The range of C/N value of the municipal solid waste was 27/1-100/1. The moisture content was in the range of 40-60% with an average value of 50%. The gross energy range of the waste as determined from the study is 14-19MJ/kg.

## **SUPERVISOR**

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