UNIVERSITI TEKNOLOGI MARA

RESIDENTIAL SOLID WASTE MANAGEMENT IN IPOH CITY, PERAK

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ABSTRACT

Municipal Solid Waste (MSW) in Malaysia involves the disposal of approximately 98% of the total waste in landfills. The current disposal method of landfilling needs improvements to prolong the landfill life and minimize the problem of land scarcity. Rapid developments and industrialization in Malaysia necessitate a better and more efficient waste management strategy. The mushrooming of urban areas and rural-urban migration have increased the per capita income due to changes in the consumption patterns that led to increased waste generation. This study examined the solid waste management adopted by households in Ipoh city, Malaysia and their level of awareness and knowledge about the environmental impact of solid waste. The study was stratified into three residential neighborhoods (low, medium, and high). Through a questionnaire survey, 350 respondents were randomly selected from the three residential neighborhoods (Taman Meru Fasa 2B = 129, Taman Meru Perdana = 126 and Meru Height = 95). The data collected was analyzed using descriptive statistics techniques such as mean, mode, standard deviation, charts, and simple percentages. Also, inferential statistics such as one-way analysis of variance (ANOVA) and independent sample t-test were applied in the data analysis. Findings from the study revealed that 96.3% of respondents make use of public bins for waste disposal while only a few (3.7%) throw their waste into the valley, nearby water, or in an open space. About 57.7% of respondents in the study area separate their wastes before disposal while the rest (42.3%) do not engage in waste separation. Waste collection by private waste collectors is between 2-3 times weekly in most neighborhoods. The t-test result showed that there is a significant difference in the level of awareness between male and female respondents concerning the environmental impact of solid ($t = -23.120$, $p<0.05$). Also, the ANOVA test results revealed that significant differences exist in the level of awareness of solid waste management among the different age groups ($F = 819.414$ (df) 5, $p<0.05$) and educational qualifications ($F = 849{,}200$ (df)5, $p>0.05$). Older respondents (> 50 years) and those with higher educational qualifications tended to be more aware of the environmental impact of solid waste than other groups. Therefore, the study recommended measures such as public awareness campaigns on solid waste separation at the source, provision of more waste bins, and increasing the frequency of waste collection by waste contractors. The findings of the study can help the Local Authority and other stakeholders involved with solid waste management in Ipoh city to improve and promote sustainable residential waste management.

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CHAPTER ONE
INTRODUCTION

1.1 Research Background

Waste is a by-product that comes from human activities. Urbanization, economic development, and improving living standards in cities impact the quantity of waste generated and its management (Abu Samah et al., 2013). The fundamental global environmental issue in both industrial and developing countries is how to best identify and manage waste (MOHSW, 2013). Solid waste management encompasses all the activities from generation to the final disposal and is defined as the control, generation, storage, collection, transfer and transportation, processing, and disposal of solid waste consistent with the best practices of public health, economics, and finance, engineering, administration, legal and environmental considerations (Johari et al., 2014). The quantity of solid waste generation is determined by the socio-economic development and the academic qualifications or urbanization rate. Generally, the greater the economic growth and the higher the percentage of the urban population, the greater amount of solid waste generated (Jereme, 2015).

Cities consume large amounts of resources, causing environmental pressure and negative impacts (García-Guaita et al., 2018). Factors such as economic growth, rising incomes, population growth, rapid urbanization, and growing demand for goods and services contribute to the increase in solid waste generation (Minghua et al., 2009). This generates consequences for urban metabolism, significantly influencing carbon emissions (Islam, 2017; Yang et al., 2018). There is a growing global trend in solid waste generation, with the current worldwide waste generation of 2.01 billion tonnes per year projected to increase 70% by 2050 to 3.40 billion tonnes annually (The World Bank, 2018). Over 2 billion tons of municipal solid waste are produced annually (World Bank 2020; Kaza et al., 2018). It is estimated that cities around the world are responsible for over 70% of global greenhouse gas (GHG) emissions, and waste generation is a major contributor to that (UN-Habitat, 2016). Solid waste management has been noted to be a global universal issue, which affects every individual and government (Davis, 2014). As urbanization continues to take place, the management of solid wastes poses major public health and environmental problem,