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Factors Affecting Municipal Household Solid Waste Management and Its Impact On Health and The Environment: A Conceptual Paper

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ABSTRACT: Municipal solid waste management in developing countries continues to be a crucial challenge for the local governments and municipalities across the nation. Increasing in population, rapid growth of economic, tremendous urbanization and change in public lifestyle has increased the generation of municipal household solid waste in Malaysia. Improper municipal household solid waste management and lack of awareness among the households on municipal household solid waste management also has affected municipal household solid waste management and impacted on public health and the environment. The aim of this study is to identify the factors affecting municipal household solid waste management and its impact on health and the environment. This study will examine the influence of socioeconomic status on the lifestyle that contributed to the generation of municipal household solid waste, awareness on municipal household solid waste management as well as the provision of facilities and services for municipal household solid waste management. A total of 379 households from four types of housing in Section 17, Shah Alam, Selangor consisting of terrace, flat, traditional village and commercial houses will be selected as the sample of this study using the stratified sampling methods. A set of structured questionnaire will be distributed among the households and analyzed using SPSS. Several useful recommendations will be suggested to the respective municipal, in this study refers to the Shah Alam City Council (SACC) for their adoption with necessary changes.

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1. Introduction

Municipal solid waste management in developing countries continues to be a crucial challenge for the local governments and municipalities across the nation (Ali et al., 2012; Wang, He, Kim, & Kamata, 2011). According to World Bank (1993), municipal solid waste management which is a global challenge has been highlighted as the major health and environmental problems faced by the local authorities and municipalities in Malaysia.

Poor municipal solid waste management includes inefficient of solid waste collection methods, insufficient coverage of solid waste collection systems, improper of solid waste disposal and inappropriate planning and management of municipal solid waste is certainly one of the major contributing factors towards the degradation of the public health and the quality of environment (Behzad, Ahmad, Saied, Elmira, & Bin, 2011; Visvanathan, Tubtimthai, & Kuruparan, 2004). As mentioned by Altaf

and Deshazo (1996), improper of municipal solid waste management and practices in most of the developing countries will lead many threats to the public health as well as the environment.

Municipal solid waste management is a broad sector (Eeda & Siong, 2012). The sources of municipal solid waste are generated from various sectors encompasses of domestic (household waste), commercial, institutional, public, agricultural, construction and demolition and industrial. From these sources of municipal solid waste, the highest and largest municipal solid waste generation in Malaysia is from the domestic sector (household waste) where it consists of food waste, paper, plastic, glass and others (Ministry of Housing and Local Government (MHLG), Malaysia, 2006). As established in the report by the Consumer Association of Penang (CAP), (2010), the domestic waste (household waste) has been highlighted as the highest generation of municipal solid waste and it consists of 45 percent of food waste.

Based on the studies by Jayashree, Marthandan, and Malarvizhi (2012) and Tarmudi, Abdullah, and Tap (2009), the researchers have claimed that the increasing population, rapid growth of economic, tremendous urbanization and changing in households' lifestyle has resulted to the increasing amount of household solid waste generation in Malaysia. Resulted from these factors, municipal household solid waste management has left a significant impact to the local authorities and municipalities in managing household solid waste as well as reducing the quality of public health and the environment in Malaysia (Badgie, Armi, Manaf, & Muda, 2012).

2. Background of Study

Overview of Municipal Solid Waste Management in Malaysia

Malaysia is located in the middle South East Asia has been categorized as a middle income economy country and expected to become as a developed country by the year 2020 (Mustapha, 1996). As a tropical land with a ground area of 329,847 km², Malaysia is divided into two distinct regions by the South China Sea (Peninsular Malaysia to the west and East Malaysia to the east) (Behzad et al., 2011). At the mid-point of journey with strong aspirations to achieve Vision 2020, Malaysia is also faced with the issues and challenges with respect to municipal solid waste management (Jayashree et al., 2012). As rightly pointed out in Vision 2020, the government of Malaysia is looking for sustainable and better living environment by integrates the existing solid waste management system (Saheri, Aghajani, Ezlin, Zalina, & Begum, 2011).

In Malaysia, local authorities and municipalities have been allocated at the third level of government institution's hierarchy. They were authorized to administer, manage and complied to perform their roles and responsibilities within their locality. It includes providing the facilities, services and infrastructure to the public and community as stipulated according to Section 101 and 102 of the Local Government Act 1976, Act 171 and Section 5 (1) (Malaysia, 1976a) and under section 6 (1) of the Town and Country Planning Act 1976, Act 172 (Malaysia, 1976b).

Municipal solid waste management in Malaysia is under the control of local authorities and municipalities as stipulated in Section 72 of the Local Government Act 1976 (Johari, Ahmed, Hashim, Alkali, & Ramli, 2012). It is the responsibilities of the respective municipal council to manage the solid waste consistent with the safe and appropriate practices taking into considerations of the public health and environment issues. According to Tarmudi et al. (2009), even some local authorities and municipalities in Malaysia has outsourced their roles and responsibilities for the collection of household solid waste services to the private contractors and consortiums (for example Kuala Lumpur City Hall); in this study refers to Shah Alam City Council (SACC), it is still their responsibility to monitor, evaluate and manage the household solid waste which has been provided to the households within their locality.

3. Problem Statement and Research Gap

According to Badgie et al. (2012), the quality of health and environment in most of the developing countries is rapidly deteriorating due to the increasing amount of solid waste generation and poor municipal solid waste management. Based on the study by Afroz, Hanaki and Tuddin (2010), municipal solid waste management is believed to be one of the major environmental problems confronting urban areas in most of developing countries throughout the world. Besides that, poor municipal household solid waste management has also impacted and resulted several issues on the public health. According to the

New Straits Times (2012), Selangor Health Department has reported the number of dengue cases in Selangor state has increased in 2012 with 4,161 cases reported. In fact, the number of dengue cases accounted in Selangor state alone is more than half of the total dengue cases in Malaysia. Resulted from this situation, the issues and problems related to the public health due to poor municipal household solid waste management have left a significant impact to the local municipalities in Selangor state especially the municipal divisions associated with municipal household solid waste management.

Municipal solid waste for Peninsular Malaysia is amounting to 19000 tonnes per day and it is estimated to increase up till 30,000 tonnes per day by the year 2020 (Tarmudi et al., 2009). As reported in the study by Saheri et al. (2011), the highest quantity and composition of municipal solid waste generation in Malaysia is generated by Selangor state in the production of 3,923 tonnes per day in 2009. To be more precise, Selangor state had generated almost 1.13 million metric tonnes of solid waste and the local government of Selangor had spent around RM330 millions per month in 2009 for municipal solid waste management activities include the collection, transportation and disposal of solid waste (Jayashree et al., 2012). According to the New Straits Times (2012), the amount of solid waste generated in Selangor state alone is expected to increase and reach up to 6,000 tonnes per day by the year 2017.

Besides that, the issues and problems that affecting municipal household solid waste management has been identified, such as the uncontrollable consumption pattern of the households, lack of awareness among the households on municipal household solid waste management and complaints on the collection of household solid waste services (Shah Alam City Council (SACC), 2013a). This is aligned with the study conducted by Badgie et al. (2012), as they have identified most of the issues and problems that normally arise on municipal solid waste management are due to lack of enforcement on waste legislation, inadequate facilities and services, as well as the public attitude and behavior on municipal solid waste management. Due to these factors, municipal solid waste management has resulted a critical debatable and it has been highlighted as main public issues in Malaysia (Idris, Inane, & Hassan 2004; Zahari, Mohd, & Armi, 2010).

Despite of few studies which have been conducted by the previous scholars on the scope of municipal household solid waste management as well as number of existing planning and strategies developed for municipal solid waste management in Malaysia, the issues and problems related to municipal household solid waste management have been debated for years and remain unsolved (Agamuthu, Fauziah, Khidzir, & Noorazamimah, 2007). In order to combat these problems and to improve the municipal household solid waste management in Malaysia, it is important for the local authorities and municipalities to engage and employ the integrated solid waste management. The implementation of integrated solid waste management requires the participation and full cooperation from the public and household in achieving the sustainability of municipal solid waste management and better living environment.

Thus, this study takes a different approach to fill the gap by identifying the factors affecting municipal household solid waste management includes the residents' lifestyle, awareness on municipal household solid waste management as well as the provision of facilities and services for household solid waste management and its impact on health and the environment. Based on the results and findings of this study, it is expected that several useful recommendations will be suggested to the respective municipal; Shah Alam City Council (SACC), for their adoption with necessary changes.

4. Research Objectives

This study aims to contribute to a better understanding of municipal household solid waste management by *identifying the factors affecting municipal household solid waste management and its impact on health and the environment*. Therefore, there are several objectives which have been planned in order to achieve the objectives of this study which are as follows:-

- R01 To examine the influence of selected socioeconomic variables (age, family size, and income level) on the lifestyle that contributed to the generation of household solid waste.
- R02 To measure the relationship between lifestyle, awareness as well as the provision of facilities and services (factors affecting municipal household solid waste management) with its impact on health and the environment.
- R03 To determine the most significant factors that affecting municipal household solid waste management and its impact on health and the environment.

5. Research Questions

Based on the research objectives given, there are several questions outlined as follows:-

- RQ1 Is there any significant difference exists between the selected socioeconomic variables (age, family size, and income level) and the lifestyle and which among the variables most contributed to the generation of household solid waste?
- RQ2 Is there a relationship between lifestyle, awareness as well as the provision of facilities and services (factors affecting municipal household solid waste management) with its impact on health and the environment?
- RQ3 Which is the most significant factors that affecting municipal household solid waste management and its impact on health and the environment?

6. Literature Review

The Influence of Socioeconomic Status on the Lifestyle that Contributed to the Generation of Household Solid Waste

A number of studies have been conducted by several scholars in these fields such as Abd. Karim and Othman (1996) and Salim, Othman and Marzuky (1994), but there is still a lack of approach in determining the factors that influence on the generation of household solid waste in Malaysia (Badrudin, Othman, Hashim & Ali, 2002).

Furthermore, few studies have been conducted by the previous scholars to indicate the influence of socioeconomic variables on the residents' lifestyle for determining the quantity and composition of solid waste generation (Bandara, Hettiaratchi, Wirasinghe, & Pilapiiya, 2007; Mazzanti, Montini, & Zoboli, 2008). Some of the common variables that were identified include age, gender, level of income, size of family members, and residents' daily activities (Emery, Griffiths, & Williams, 2003). According to Cherian and Jacob (2012), the nature and composition of waste generation are found to be influenced and impacted by the residents' lifestyle. Agamuthu et al. (2007) stated that the effects on socioeconomic variables include the level of income and uncontrollable expenditure pattern is found to be different and vary from across locations.

Besides that, the correlation between household solid waste generation with socioeconomic factors and residents' lifestyle have been examined by previous scholars (Philippe & Culot, 2009; Sankoh, Yan, & Mohamed 2012; Wang & Wu, 2001). In addition, Bandara et al. (2007) stated that there were previous studies were conducted and using regression analysis techniques to demonstrate the relationship between the household solid waste generated and socioeconomic status as well as the residents' lifestyle (consumption pattern).

Influence of Age on the Lifestyle

A study by Eeda and Siong (2013) discovered that the elderly households (those whose ages above 55 years) tended to be more aware of the waste minimization activities, thus impact on their daily lifestyle includes their consumption patterns. This is aligned with the study conducted by Lee and Paik (2011), as they found the older households were more aware of the impact of municipal household solid waste management towards the health and the environmental problems. In addition, the researchers found that older households were more likely to engage in waste management and minimization activities such as recycling programs. Tonglet, Philips, and Bates (2004) has reported that residents those in the age range from 25-39 years old were less likely to engage in waste management and minimization programs due to lack of time on the character of young households at home, compared to elderly households those aged above 60 years who are mostly retired.

Influence of Family Size on the Lifestyle

According to Afon (2007), socioeconomic status (demographic factors) includes the overall size of family members as well as the residents' lifestyle has been identified as the factors that resulted in the increasing of household solid waste generated. This was supported by the study from Sivakumar and Sugirtharan (2010), where the researchers have emphasized that family size is an important attribute in the generation of household solid waste. A study by Badruddin et al. (2002) discovered that the family size and eating habits (home cooking) tend to significant influence on the generation of household solid waste. The outcomes and findings from this study shown the amount and quantity of household solid

waste tend to increase and higher correspondingly to the family size, but lower quantity of household solid waste are generated as more frequent family dining out activities.

Besides that, a study carried out by Sivakumar and Sugirtharan (2010) has demonstrated a significant positive correlation between family size and residents' lifestyle (consumption patterns) towards the household solid waste production. The results of their study proved the family size had a significant positive correlation with household solid waste generation. The researchers have also underlined that the increasing in family members leads to increase the resource consumption, thus resulting in the increasing amount of household solid waste generated.

In addition, there was a study by Rohana and Arshad (2010) on the socioeconomic status and residents' lifestyle in Selangor and the outcomes indicated that eating habits (frequency of home cooking activities) and size of family members (number of occupants) significantly influence and correlated with the household solid waste generation. Thus the researchers have claimed that families with more individuals will generate more amount of household solid waste. Nevertheless, it contrasts with the findings of study by Abu Qdais, Hamoda and Newham (1996), as it has demonstrated a poor relationship between the family size and with the amount of household solid waste generated. Besides that, a study by Jenkins (1993) have also exposed the number of family size has a negative impact on the amount of household solid waste generated.

Influence of Income Level on the Lifestyle

According to Zhu, Asnani, Zurbrugg, Anapolsky and Mani (2008), the residents' income level and daily consumption patterns have strong influence on municipal household solid waste generation. This was supported by Visvanathan et al. (2005) which indicated that the changing in lifestyle due to income level earning by the households and uncontrollable consumption patterns lead to the huge generation of household solid waste.

According to Irwan, Basri and Watanabe (n.d.), the affluence or household income level has been identified as the most influential factors and play a major role in determining waste generation rate and composition. A positive correlation between income level and waste generation rate means that higher income level of the households is, the more waste will produce due to the possession of expendable income to consume more products. Meanwhile, a negative correlation (as opposed to a positive correlation) could show that higher income of household earns, more often the residents to dining out and therefore will create less waste per capita.

Irwan et al. (n.d) also claimed that previous researchers and scholars have found conflicting indications in showing the correlation between income level and waste generation rates. For examples, studies by Wertz (1976) and Jenkins (1993) discovered that there is a direct positive correlation between income level and solid waste generation rate, while a study by Cargo (1978) have found otherwise. In addition, Hockett, Lober and Pilgrim (1995) noted that the correlation between income level and waste generation is inconclusive.

Besides that, Medina (2002) also asserted that a positive correlation tends to exist between residents' monthly income and the amount of household solid waste generated. According to Richardson and Havlicek (1974), household monthly income and family size are the most significant factors that affecting the quantity and amount of waste generated from the household consumption patterns.

Awareness on Municipal Household Solid Waste Management

Previous studies conducted by several scholars have focused on the public attitude and knowledge of the households towards waste minimisation and household waste management in Malaysia (Hashim, Mohamed, & Redza, 2012; Omran, Mahmood, Abdul Aziz, & Robinson, 2009). Al-Momani (1994) expressed that personal attitude and behavior are said to influence on the increasing of household solid waste generated. According to the Global Environment Centre (2002), public attitude and lack of consciousness among the Malaysian public on solid waste management issues, and being ignorant about the likely impact of improper and inefficient solid waste management is worsening the problem.

Based on a study by Zahari et al. (2010) on solid waste generation in Kuantan, Malaysia, it was proven that the public and residents of that area were not given good response to the Kuantan Municipal Council on the 3R (Reduce, Recycling and Reuse) program. Besides that, a study conducted by Jayashree

et al. (2012) on the domestic solid waste with the aim for waste minimization in Selangor state also indicated the low cooperation and participation from the households and community. Moreover, a study by Omar (2008) on the current situation of waste management in the city of Shah Alam, Selangor also highlighted on the lack of public awareness and public participation in waste management programs.

According to Penjor (2007), the limitation of the financial resources has limited both media and environmental agencies to promote the public awareness programs for provide better knowledge and understanding of solid waste management to the public. Besides that, the problems of lacking in knowledge for proper handling of household solid waste which is partly due to most academic institution failure to offer courses and subjects in waste management are one of the factors cited that affecting municipal solid waste management in Malaysia (Sakawi, 2011). According to Blanchard (1995), it is important for the government to take action by promoting public awareness on solid waste management, particularly on young generation through education as it is a key towards a sustainable environment. Sharmin (2013) stated that most of Asian countries have made an effort in promoting environmental education at primary, secondary and tertiary levels. In 1994, the Malaysian Ministry of Education has introduced the environmental education across the curriculum by integrating relevant activities for every single subject (Yakob, Esa & Yunus, 2012). However, this initiative was not successfully implemented due to density of existing syllabus and the teachers are focused more on the students' academic performance (Abdul Ghani & Aziah, 2007).

According to Eeda and Siong (2012), the public and households in Malaysia have adequate knowledge and awareness on waste management and minimization. However, only few of them are really practicing solid waste minimization. This phenomenon has resulted to the increasing amount of household solid waste generated and impacted on the management of municipal household solid waste by the municipalities in Malaysia.

Provision of Facilities and Services for Household Solid Waste Management

Despite an aggressive and tremendous urbanization, the current practices and management of municipal solid waste in Malaysia is quite poor and least efficient (Badgie et al., 2012). This was supported by Wang et al. (2011), as the researchers have stated that the current practice and standard operating procedures (SOPs) of municipal solid waste management in developing countries is considered as poor and least efficient.

As asserted by Bartone (1995), the problem of inefficient and improper municipal solid waste management that always arise include poor and irregular and infrequent of waste collection services, illegal dumping and burning of waste, and uncontrolled handling of informal waste collector. According to Rohana and Arshad (2010), the problems on the household solid waste usually encounter in low cost residential areas. This is resulted from the inadequate and insufficient of waste facilities and services as well as the broken facilities which are not properly maintained by the municipalities.

According to Jha, S.K. Singh, G. P. Singh, and Gupta, (2011), insufficient and infrequent of solid waste collection lead to worsening the problems related to municipal household solid waste management. Visvanathan et al. (2004) claimed, insufficient of waste management as well as the inadequacy of waste collection and disposal practices has resulted in the environmental issues in the Asian Region.

Improper and poor collection of municipal household solid waste will affect the residents' perception and trust in the services offered by the municipality. As mentioned by Sakawi (2011), the residents and community are really sensitive and concern on the collection of waste services and most of the complaints received on municipal household solid waste relate to the collection of household solid waste. According to Rohana and Arshad (2010), the failure of the municipal and subcontractor to collect the solid waste in the residential areas at the scheduled time has contributed to the increasing quantity of household solid waste and resulted to the overloaded on the communal memory. Resulted from this situation, the residents have left their household solid waste around the communal storage and it has resulted to the presence of dogs and waste being scattered nearby.

Impact of Municipal Household Solid Waste Management on Health and the Environment

Municipal solid waste generated in most of the developing countries are producing harmful solid, liquid and air emissions to the environment as well as the public health (Abba, Noor, Aliyu & Medugu, 2013; Contreras, Hanaki, Aramaki, & Connors, 2008; Li, Hou, Guo, Yao, & Sang, 2011). Inefficient and ineffective municipal solid waste management has resulted in serious problems and risks to the public health and left a negative impact on the quality of the environment (Ali et al., 2012).

According to World Bank (1993), there are some issues on waste pollution includes haze and air emissions, water problems, and indiscriminate dumping of toxic and hazardous waste due to improper household solid waste disposal and treatment which worsened the environmental problems. Supported by Alam and Ahmade (2013), they have claimed that improper municipal solid waste disposal as well as lacks of waste management has resulted in air, soil and water pollutions. Based on the study by Badgie et al. (2012), the researchers have listed the environmental problems due to improper and poor waste management as below:-

- Damage or loss of biodiversity
- Air, water, land and noise pollution
- Loss of recreational amenities
- Loss of aesthetic landscape and scenery
- Explosion of hazardous waste

As mentioned by Tchobanoglous, Theisen and Vigil (1993), most of the health problems are resulted from the improper collection, transfer and disposal of solid waste. This is supported by the study from Rohana and Arshad (2010), which shown several waste containers were possibly used for breeding habitat and presence for mosquito that might resulted to the increasing of dengue fever. Kamau (2000) also indicated that the trash or unwanted items such as empty bottles, tires, plastics and others were also significantly contributing to mosquito related diseases such as dengue. Besides that, a study by Sunil (2005) shown the inconsistency of collection and decomposition of waste will attract for the breeding of flies, rats, cockroach and others, thus resulted in health problems. As stated in the study by Sabesan (2001), the presence and breeding of insect and pests are close related to solid waste generated by human activities. For examples, flies and cockroach are attracted to any wastes which left unattended and it can spread out many diseases such as cholera, diarrhea, and typhoid. According to Pan American Health Organization (2002), even flies are not biting as mosquitoes, it has been classified as mechanical carriers of diseases which can transfer the germs and pathogens to human food. Given the literature reviews above, adequate provision of facilities and services for municipal solid waste management is very important to mitigate and reduce the impact on the public health and living environment (Phelphs, Heinke, Jonker, Ouano, & Vandecasteele, 1995).

7. Methodology

This study falls within the context of social science research paradigm. Theory of integrated solid waste management is considered in constructing the conceptual framework for this study with a comprehensive review of the literature and studies by the previous scholars. Besides that, several field studies and discussions have been conducted with the Shah Alam City Council (SACC) divisions associated with household solid waste management to gather the relevant data and information about household solid waste management and practices in the city of Shah Alam Selangor. The lifestyle, awareness and provision of facilities and services for household solid waste management which has been identified as the factors affecting municipal household solid waste management is the independent variables, while the impact of municipal household solid waste management on health and the environment is the dependent variable. The moderating roles of socioeconomic variables (age, family size, income level) that influence on the lifestyle which contributed to the generation of household solid waste are also studied.

8. Unit of Analysis

As mentioned by Afroz et al. (2010), data and information on household solid waste management needs to be considered whether should be collected from the households or based on an individual basis. The unit of analysis in this study refers to the households in Section 17 Shah Alam, Selangor. In regards to the

selection of households as the unit of analysis, the reference on income level used in this study is based on the household monthly income rather than individual respondents' income. The reason for choosing households as the unit of analysis is because the cultural practices where most of the family members' income is joined together for the purpose of any family expenses. Hence, all these justify the choice of households as a unit of analysis.

9. Population

The target population for this study refers to the households in Section 17 Shah Alam, Selangor who have received the services on municipal household solid waste management. The area of this study is confined to the households from four types of housing in Section 17 Shah Alam, Selangor which consists of (i) terrace / bungalow; (ii) flat / apartment; (iii) traditional village and (iv) commercial.

10. Sampling Design

This study focuses on municipal household solid waste management in Selangor state with the selection of the city of Shah Alam which is the capital city of Selangor in representing the whole and entire population in Selangor state. The city of Shah Alam, which is the capital city of Selangor state is managed and administered by Shah Alam City Council (SACC). As the administrative center of Selangor and leading city planning in Malaysia, Shah Alam city development event embark good municipal solid waste management to be studied (Shah Alam City Council (SACC), 2013a).

The sample of this study was selected purposely from the residential areas in the province of Shah Alam, Selangor. There are 56 Sections in Shah Alam, Selangor which was divided into two areas, North (U1-U20) and South (Section 1-30). In order to achieve the desired objective, the researcher has conducted interview sessions with municipal division that associated with municipal household solid waste in Shah Alam, Selangor which is Jabatan Perkhidmatan Bandar, Bahagian Pengurusan Sisa Pepejal, Shah Alam City Council (SACC). Based on the interview results and findings, Section 17 Shah Alam has been identified as the area which has received the highest number of problems and reported complaints on municipal household solid waste management in the city of Shah Alam, Selangor (Shah Alam City Council (SACC), 2013b). Besides that, there is various ethnics' composition in Section 17 Shah Alam, Selangor. According to Eeda and Siong (2012), the three major ethnic groups of population consisting of Malay, Chinese and Indian are fully presented in Section 17 Shah Alam, Selangor.

11. Sampling Technique

In this study, stratified random sampling is selected as the sampling techniques and the data analysis of this study will be based on the primary data collected from a questionnaire approach from the households in Section 17 Shah Alam, Selangor. The estimated population of Section 17, Shah Alam is 27,905 residents. According to table of sample size proposed by Sekaran (2003), the recommended sample size in this study is 379 of the total population. Thus, 379 respondents based on the stratified random sampling proportions (terrace / bungalow - 248; flat / apartment - 64, traditional village - 53, and commercial - 14) will be selected to fill up the questionnaires.

12. Data Collection

A survey based on the questionnaire approach is being used as medium in collecting and obtaining the data and information. The items and variables constructed in the questionnaire were adopted and adapted from several literatures and studies from previous researchers. A total of 379 questionnaires will be distributed to the residential area of Section 17, Shah Alam through enumerators (Resident Associations) and self-administered. There are 33 questions / items in total and it comprises of 6 sections. The questionnaire was designed in both English and Bahasa language in order to give opportunity for those respondents who may not understand the English language to participate.

13. Data Analysis

A statistical computer package for the social science (SPSS) will be used to analyze the data in this study. The analysis of data will result in (i) reliability analysis: to test for internal consistency of items

constructed; (ii) frequency distribution: to interpret the respondents' socioeconomic status (demographic profile); (iii) descriptive statistic: to examine the frequency, percentage, mean, variance and standard deviations of the items and variables; (iv) analysis of variance (ANOVA): to determine whether or not the differences exist in the mean of selected socio-economic status (age, family size, employment status and level of income) with respect to the items used to influence on the lifestyle; (v) correlation analysis: between independent and dependent variables; (vi) regression analysis: to indicate the most significant correlation and prediction of independent variables with the dependent variable.

14. Conclusion

It is important to provide a clear and detailed understanding of the study in order to address the problem and issues arising in the municipal household solid waste management. This paper states the aims of the study and why it should be conducted. Definitely, through this study, it will give some benefits to the several parties such as the Shah Alam City Council (SACC) in managing household solid waste in the province of Shah Alam. Besides that, this study is expected to create awareness and provide better understanding to the households on the impact of public health and environment problems resulted from the generation of household solid waste as well as improper municipal household solid waste management.

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