

Sustainable Development on Household Waste Management in Batu Pahat, Johor

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Abstract: Sustainable Development (SD) is a phenomenon that emerged in the 1970s when major development programs were undertaken by the developing world in terms of cutting, clearing forests, constructing elevated buildings and spacious highways. A sustainability is then needed to develop without endangering the needs of the future generations since it impacts the natural environment. For this study, the scope of research done is focused on residential area in Taman Melewar, Parit Raja which consist of 130 residential houses. This paper focusing on proper household waste management in sustainable approaches. This study was carried out by a questionnaire, Google Form that distributed online using social media platform that is more preferred during this pandemic. A set of 100 response from the resident is received. As a result, the current household waste management were identified and the level of awareness of the respondents towards the sustainable household management is identifies as high, even though only partial of the respondent does separate their waste as a way to a sustainable waste management. Several recommendations are needed to be done in order to increase the application of sustainable household management among residents.

Keywords: Sustainable Development, Households Waste Management, Waste Separation,

1. Introduction

The three cores that need to be approach in need of sustainable development are economy, social and environment [8]. In this study, it is more focused on environmental development that is more to conserve the flexibility of biological and physical systems. Previous researchers have studied various aspect of environmental protection to overcome the problem that may arise to be in the line of the growth of the modern and sustainable world.

Over the past few decades, household waste generation has increased several fold overs in Malaysia [9]. The phenomenon of globalisation and industrialization has profoundly changed Malaysian culture

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and lifestyle in the last decade. Malaysia's unsustainable consumer culture has led to a dramatic increase in solid waste generated every year [1]. One of the three major environmental issues in Malaysia is household waste. More than 23,000 tonnes of waste is currently produced in Malaysia every day [9]. This number, however, is expected to grow to 30,000 tonnes by 2020. Due to the growing population and growth, the amount of waste produced continues to increase and only less than 5 percent of the waste is being recycled [9]. Due to the growing lack of space for new landfills, other waste management approaches are being studied by the authorities in major cities in Malaysia. New sustainable municipal waste management (MWM) technologies are urgently needed to address this issue because until today, the implementation of greenhouse gas (GHG) emissions control in Malaysia is still poor and inadequate [11].

In recent years, several countries are finally realising and acknowledging the effect of inadequate waste management practises on the natural environment [7]. Improper management of waste led to contamination of groundwater and surface water and air pollution, causing adverse effects on the environment and human health [2]. Different public and non-governmental organisations should pursue comprehensive and holistic approaches and efforts to inform the public by concentrating on the underlying causes for recycling and the detrimental effects of garbage collection on the environment [7]. In an effort to improve the standard of household waste management in Malaysia, various initiatives have been taken by the Malaysian government, among them is Act 672. In the year of 2007, Solid Waste and Public Cleansing Management Act 2007 (Act 672) has implemented in Malaysia. Based on Act 672, "household solid waste" means any solid waste generated by a household, and of a kind that is ordinarily generated or produced by any premises when occupied as a dwelling house, and includes garden waste.

As detailed in the future vision of the country, Malaysia's municipal waste management strategies have some extent to be able to enhance environmental quality, public health, and socio-economic growth [11]. As Malaysia has pledged to reduce greenhouse gas emissions by 45% by 2030, it is important for Malaysians, in particular households, to separate waste in their homes because it will lead to a better environment and indirectly contribute to the national carbon reduction goal by reducing solid waste gas emissions [4]. A combination of methods and services includes integrated waste management such as waste separation to specifically fit their local needs. To date, most of the waste challenge studies in Malaysia have focused not on recycling but on the state of solid waste management [10].

2. Materials and Methods

The material and methods that been applied to this study is questionnaire survey.

2.1 Questionnaire Survey

A set of questionnaires was distributed to a residential area which is Taman Melewar that is located in Parit Raja, Batu Pahat. A total of 100 responds from the residents of Taman Melewar has been received. The questionnaire consisted of four section which is: i) demography; ii) current household waste management practice; iii) household awareness of sustainable waste management approaches; and iv) willingness to practice sustainable household waste management. During this study, method that have been used is actual survey by social media post. This method is done by distributing the questionnaire using Google Form. During this pandemic, face to face contact or any physical distribution has to be avoided to decrease any possibilities of distribution of diseases. Therefore, social media platform such as local community Facebook group platform and from Taman Melewar, Parit Raja.

3. Results and Discussion

This section goes into the study's analysis and findings in great detail. The information is based on surveys that were used to collect primary data. For ease of interpretation, the data from the questionnaires was processed and presented in tabular form. The Statistical Package for Social Sciences (SPSS) was used to analyze the data from the questionnaires in this study. The data was analyzed using

descriptive analysis to generate analysis by frequencies, means, and percentages. Descriptive analysis gather information about things, people, individuals, events, and circumstances, as well as organizing, tabulating, depicting, and describing the results [3].

3.1 Analysis on Demographic

Table 1: Summary of respondent's demographic profile (n=100)

Variables	Description	Frequency	Percentage (%)
Gender	Male	30	30
	Female	70	70
Age	18-25 years old	32	32
	26-35 years old	28	28
	36-45 years old	19	19
	46-55 years old	8	8
	56-65 years old	10	10
	66-75 years old	1	1
	above 75 years old	2	2
Ethnicity	Malay	65	65
	Chinese	20	20
	Indian	14	14
	Others	1	1
Education Level	Primary Education	0	0
	Secondary Education	29	29
	Higher Education	71	71
Occupation	Government sector workers	8	8
	Private sector workers	21	21
	Self-employed	18	18
	Homemaker	17	17
	Student	28	28
	Retired	6	6
	Unemployed	2	2
Number of person in a household	1	6	6
	2	11	11
	3	21	21
	4	32	32
	5	19	19
	6	5	5
	7	2	2
	More than 7	4	4

From Table 1, it can be said that the majority of the respondent that took part in the survey is female (70%, 70 respondents), meanwhile the proportion of male is only 30 respondents (30%). In terms of age, the majority of the respondent are at the age of 18-25 years old, this is maybe due to the residential houses that is also rented house for the students of the nearby university. As for ethnicity, among the other groups, Malay respondents are the highest respondents in the survey counted by 65 percent of the total responses. The number of Chinese and Indian respondents are almost the same (20 and 14 respondents respectively). Moreover, 71% of the respondents are received higher education, followed by secondary education (29 %,29 respondents). Other than that, majority of the respondents is working as students (28 %. 28 respondents), private sector workers (21%,21 respondents), self-employed (18 %, 18 respondents) and also as a homemaker (17%,17 respondents). Last but not least, 32 respondents out of 100 respondents have four people as the highest in their household and also seven number of people for the least number of person in a household.

3.2 Current Household’s Waste Management Practice’s Analysis

This purpose of this part in the questionnaire is intended to get information on the current method of household’s waste disposal and also the weekly frequency of the households waste.

Table 2: Summary of Current Household’s Waste Management Practice’s Analysis

Variables	Description	Frequency	Percentage (%)
Respondent’s Weekly Frequency of Household’s Waste Disposal	0	1	1
	1	1	1
	2	26	26
	3	30	30
	More than 3	42	42
Current Method of Household’s Waste Disposal	Buried	0	0
	Open Burning	11	11
	Dispose in the bin provided	8	8
	Dispose in nearby rivers/trenchers	3	3
	Disposed at desired place	5	5

Based on Table 2, it shows that the current household waste disposal by showing that the highest frequency is more than three times weekly accounted for 30 percent of total responses followed by disposed three times weekly by 30 %. This might due to the big load of trash to be dispose every day. the majority of the respondent dispose of their household waste in the bin provided with the frequency of 81 respondent (81%). The least used method of household’s waste disposal is by burying the household’s waste. However, from the data has shown that 3 respondents represented by 3 percent of total respondents has choose to dispose their household’s waste in nearby rivers/trenchers and other desired places.

3.3 Descriptive Analysis

These analyses were carried out using IBM SPSS Statistics software and were represented by frequencies, means, and standard deviations. As shown in Table 3 is the level determination for the mean score range.

Table 3: Level of Mean Score Range [6]

Range of Mean Score	Parameter Name
1.00-2.33	Low
2.34-3.67	Mean
3.68-5.00	High

3.3.1 Household Awareness of Sustainable Waste Management Approaches

Table 4 shows the mean and standard deviation for the frequency and percentage of does the respondent separate their household waste?

Table 4: Frequency and percentage of does the respondent separate their household waste?

Does the respondent separate their household waste?	Frequency	Percent
Yes	19	19
No	39	39
Sometimes	42	42

Based on Table 4, 19 respondents (19 %) out of 100 respondents separate their household’s waste, compared to 39 respondents (39 %) who did not separate their household waste. The number of respondents who did not separate their household waste is higher than respondents who separate their household waste. The rest of the respondents accounted for 42 percent of total respondents occasionally separates their household waste.

Table 5: Mean and standard deviation of Household Awareness of Sustainable Waste Management Approaches

Variables	Statement	Mean	Std. Deviation
Household Awareness of Sustainable Household Management	Sustainable household waste management is very important for sustainable development.	4.34	.855
	Household waste separation is one of the correct ways to manage household waste.	4.33	.817
	Unmanageable household waste management will have an impact to the environment	4.39	.840
Reasons for the respondent to separate their household waste	I separate household waste management due to others	3.84	1.463
	I separate the household waste to save money.	3.68	1.493
	I know that environmental pollution can be reduced by applying household waste segregation.	4.63	.684
	I have seen the practice of segregation of household waste in the news (television, radio, newspapers).	4.42	.902
	Household waste segregation is easy to practise.	4.74	.733
	I do not know about household waste separation.	2.95	1.264
Reasons for respondent not to separate their waste	Waste separation does not bring any difference to current practise.	2.77	1.207
	Waste separation is not my responsibility.	2.57	1.254
	I do not recognize the importance of household waste separation.	2.64	1.307
	I do not have time to segregate household waste.	3.22	1.304
	Household waste segregation require more material such as bins and plastic	3.77	1.052

In Table 5, the questionnaire then continue to the fourth question) where the respondent is asked if they separate their waste in their household waste disposal. Based on the result shows in Table 4.11, 19 respondents (19 %) out of 100 respondents separate their household’s waste, compared to 39 respondents (39 %) who did not separate their household waste. The number of respondents who did not separate their household waste is higher than respondents who separate their household waste. The

rest of the respondents accounted for 42 percent of total respondents occasionally separates their household waste. The questionnaire further asked the respondents who separate their household waste the reason they were doing so. Table 5 shows the descriptive analysis for the reasons of the respondents to separate their household. The mean score shows that the main reasons the respondents separates their household are because it is easy to do and it can reduce environmental pollution. The questionnaire also asked the reason why some of the respondents did not separate or occasionally separate their household waste. The highest mean score is 3.77 where the reason not to practice household waste segregation is because it requires more material such as bins and plastic. The least mean score for the reason not to practice their household waste is due to not recognize the importance of household waste separation.

3.3.2 Willingness to Practice Sustainable Household Waste Management

As shown in Table 6, shows the level of the willingness of the resident to practice sustainable waste management. The result show that the respondents are willing to practice sustainable household waste management. If they practice sustainable household waste management they preferred to segregate and recycle the waste.

Table 6: Mean and Standard Deviation for the Willingness to Practice Sustainable Household Waste Management

Variables	Statement	Mean	Std. Deviation
Willingness to Practice Sustainable Household Waste Management	I will segregate the waste when I manage the household waste.	3.72	1.111
	I will recycle the household waste.	3.66	1.056
	I will recycle household waste at least once in two weeks.	3.39	1.205
	I will apply the sustainable household waste management.	3.88	.977

4. Conclusion

This paper investigates the sustainability in the households waste management among residents in Taman Melewar, Parit Raja. From overall study, it can be concluded that the level of household awareness of sustainable household management is high even though only partial of the respondent does practice the sustainable waste management which is waste separation. As a recommendation, various efforts can be done in order to increase the awareness and the willingness of the residents in the sustainable waste management approaches. Policy regulation is the most important determinant of attitude among residents of households, whereas awareness of consequence has the strongest association with attitude among residents of households. A sufficient supply of facilities, such as waste bins, should be ensured that adequate facilities are available in both quantity and quality.

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