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FACTORS AFFECTING THE PUBLIC ACCEPTANCE TOWARDS WASTE
SEPARATION AT HOUSEHOLD LEVEL

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This Report Submitted In Partial Fulfillment of The Requirements For The Award Bachelor
of Technology Management (High Technology Marketing) With Honors

Faculty of Technology Management and Technopreneurship

Universiti Teknikal Malaysia Melaka

JUNE 2019

DECLARATION

“I admit that this report is the result of my own, except certain explanations and passages where every of it is cited with sources clearly.”

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DEDICATION

I would like to dedicate the appreciation to my family members who supported me from spiritually and financially, beloved supervisor and panel who guided me throughout the research, housemates and course mates that assisted me through the journey of research.

ACKNOWLEDGEMENT

First of all, I would like to thank the Faculty of Management of Technology and Technopreneurship (FPTT) UTeM for providing the subject. This project has given me the opportunity to gain a deeper knowledge about the topics that I chose. Without this subject, I would not know that I will be able to complete this project as an undergraduate project was always known as the most difficult projects at the university.

Apart from that, I would like to take this opportunity to express my gratitude to my supervisor, Dr. Nurul Zarirah bt Nizam who has been giving me guidance patiently to make sure that I am always at the right path. Without her help, this project would not be completed successfully. I also would like to take this opportunity to convey my gratitude to other lecturers and course mates who always ready to help me whenever I faced difficulties in doing the final year project and willing to share the information to me.

Last but not least, I would also like to express my appreciation to my family and friends who have given their hand along the way. Their loves and spiritual supports have always given me the strength to finish this final year project. Once again, thousand words could not fully express my thanks to them, but their kindness have graved in my heart all the time.

ABSTRACT

The successful of waste separation at source depends on the willingness and good practices among the residents. The participation rate of waste separation in Malaysia is low and there is an urgency to foster waste separation practice among the household. Considering that, the Separation at Source Initiative (SSI) under Solid Waste and Public Cleansing Management Act 2007 (Act 672), effective on September 2015 mandatory require the resident to separate waste in their dwelling, but the SSI still received resistance from the households. A careful investigation of the factors that affecting and prohibit the waste separation practice at source should be conducted; this required further investigation on multiple acceptance dimensions, including: social behavior, culture, and policy change. This paper explains the rationale to investigate the multiple factor that affecting the acceptance dimensions for fostering waste separation practice among the household.

ABSTRAK

Keberhasilan pengasingan sampah diperingkat masyarakat bergantung kepada kesediaan diri dan juga amalan kebersihan dalam kalangan masyarakat. Kadar penyertaan kepada amalan pengasingan sampah di Malaysia masih kurang dan memerlukan tindakan segera bagi memupuk amalan pengasingan sampah dalam kalangan ahli rumah. Mengambil inisiatif undang-undang yang tertakluk dalam Separation at Source Initiative (SSI) di bawah Akta 672 Solid Waste and Public Cleansing Management Act 2007 yang berkuatkuasapada September 2015 mewajibkan masyarakat supaya mengasingkan bahan buangan sendiri. Walau bagaimanapun SSI, masih mendapat tentangan dalam kalangan masyarakat. Kajian yang terperinci perlu dilakukan keatas faktor yang mempengaruhi dan menghalang kepada amalan pengasingan sampah dalam kalangan masyarakat. Ini memerlukan kajian yang lebih mendalam kepada kepelbagaian dimensi penerimaan, termasuklah :tingkahlaku sosial, budaya dan juga perubahan dasar undang-undang. Kertas ini memberikan penerangan rasional kepada kajian kepelbagaian faktor yang mempengaruhi demensi penerimaan untuk memupuk amalan pengasingan sampah dalam kalangan masyarakat.

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CHAPTER 1

INTRODUCTION

This chapter will introduce the factors that affecting the public acceptance towards separation of waste at household level. This chapter also will provide all the research problem, research questions and also research objectives for this research.

1.1 BACKGROUND OF STUDY

Population growth has led to an increase in generation of daily waste in Malaysia. Segregation waste disposal is an issue that is challenging to manage of any urban area. Malaysia as a develop country that experience rapid industrialization and urbanization are facing the effects on environment from the increasing of waste generated. Food waste is a major component of generated waste for about 45 percent and contains high organic compounds. Due to un-separated waste, more than 30 percent potentially recyclable materials such as paper, plastic, aluminum and glass are still directly disposed of in landfills (The Star,2017).

This situation is needed to be change considering that 16.76 million tons of waste which are 70 percent from household and 30 percent form waste commercial waste is expected to be generated by nearly 30 million Malaysians in the year 2020, the Malaysian government plans to reduce the waste disposed of in landfills as a result, waste segregation solution is not only have economic value, but also have environmental important.

The main objective of waste management is to reduce the amount of waste being generated, and as impact reducing on the disposal costs, the effect on the environment and the consequences on human health as well (Agamuthu et. all,2009). The normal solid waste management system practiced in developing country brings many problems (Manaf.et all,2009) : (i) limited collection of waste coverage and irregular collection services; (ii) open dumping and burning without control of air and water pollution; and (iii) the breeding of insect such as vermin and flies.

By the year 2020, the reduction shall amount to 40 percent through 22 percent recycling and 80 percent intermediate treatment such as waste-to-energy, composting and material recovery (Malaysia Kini, 2015). In this study also, researcher would like to highlight the public acceptance towards segregation of waste disposal as well as the factors that contribute to willingness to respond. Segregation wastes refer to the separation of wet waste and dry waste. Waste also can be segregated on basic of biodegradable or non-biodegradable.

1.3 PROBLEM STATEMENT.

Malaysian produces an average of 30,000 tons of waste every day. Only 5 percent of it is recycled. These two statistics were recently revealed by the national Ministry of Urban Wellbeing, Housing and Local Government, and they're causing enormous problems for Malaysia. Current waste management practices in Malaysia for disposal of municipal solid waste (MSW) is through landfill and most sites are open dumping areas (Manaf et al, 2009). Open dumping results in tremendous land and air pollution for the environment, health problems for communities and bottlenecks to economic growth. Taken together, the problem of poor waste management in Malaysia is one of the nation's biggest issues to date.

A New Policy for Waste Management in Malaysia that Malaysian authority has been left with one option that is mandatory recycling with fines for noncompliance. Programs that handed out recycling bins and hoped for the best have been started and stopped since 2007 but, due to public ignorance and disinterest, have met with utter failure. Despite, the process to separate household solid waste is easy and uncomplicated that could reduce the amount of solid waste sent to landfills by 40 percent (Clean Malaysia, 2015). A recovery like this is very crucial and something Malaysia needs.

1.4 RESEARCH QUESTION

- i) What are the factors that influence the acceptance of public household to separate waste disposal?
- ii) Which factors those influence the most towards the perception of public to separate waste disposal at household level?
- iii) Did public aware about environmental problem that engage with waste disposal?

1.5 RESEARCH OBJECTIVE

- i) To determine the factors of acceptance towards separation waste disposal at household level.
- ii) To identify the most factors contribute to the acceptance of public toward waste separation.
- iii) To investigate public environmental concern toward waste problem.

1.6 SCOPE

The aspect looked into this research is public environmental concern towards separation waste disposal at source, waste disposal management awareness and the willingness to respond among communities. The scope of this research is focuses on the perception of Malaysian public household and how likely they want to associate with waste disposal, involve young adult generation that engage with daily domestic waste. The research study is decided to focus at the state of Melaka and part of Kedah state.

1.7 LIMITATION AND KEY ASSUMPTION

The limitation that should face during study is the knowledge gain correlated to the field of research topic. Second limitation is respondent might simply answer the question due to lack of awareness among communities. Segregation waste management at source in Malaysia are not well-known implement hence the result of the study will be effected that lead to the third limitation of inaccurate assumption toward public acceptance of garbage disposal segregation at household level in Malaysia.

1.8 SUMMARY

Major changes in various aspects such as social behavior, culture and policy change have the capacity to raise awareness and create a good perception on segregation waste disposal. Waste segregation at source is crucial to enhance the recycle culture in communities. The way human respond and co-operation on waste management reflect the public acceptance. Waste management strategies that shifting toward more recycling will beneficial not only to overall health concern but also toward better environment in future. Combined with all the other factors, it is clear how waste management can save our environment and help grow a greener world.

CHAPTER 2

LITERATURE REVIEW

INTRODUCTION

This chapter is present the literature review from different perspectives of researcher, previous research and study that are related to the public acceptance of waste separation at household level. The previous study will be used as reference to complete the study. This chapter begin with the definition of municipal solid waste, growing waste problem, and current waste management in Malaysia also the insight from international experience which be the main reason researcher choose to develop this study. The information in this chapter is retrieved from secondary data collections which are from book, journal and internet.

2.1 MUNICIPAL SOLID WASTE

In general, municipal solid waste (MSW) is a collection of various solid wastes by towns and cities from different type of household activities. MSW include of everyday waste that we used before then throw away, such as clothing, furniture, product packaging, bottle, food scraps and appliances. They comes from vary source which are from resident, industrial, institution, commercial and city area (Gaurav.K, 2014). MSW is segregate and classify according to their physical state composition

which are organic and inorganic waste. Organic waste comes from plant and animal include the food waste, paper waste and rubber waste. Besides that, inorganic wastes are consists of metal waste, tin waste, glass waste, and also plastic waste.

In other perspective, municipal solid waste is classify as base on its biodegradable categories which fully biodegradable (some organic waste, paper and textiles), partially degradable (some organic waste, disposable napkin and sanitary waste) and non-degradable (metals, glass and electronic waste) (Jha et. al. 2011). However, regardless of its origin and type of material, it shows the natural resources as well as raw material usage is incomplete to the end of recycle process. Hence, it is a huge loss to the country and individual itself not to utilize the waste and generate cost saving. The studies regarding waste separation management and characteristics are still limited and the efficiency of the solid waste management system in Malaysia is the major constraint (Seow Ta Wee 2012; Jha et. al. 2011).

2.2 GROWING WASTE PROBLEM

The rate of pattern change in solid waste generation is affected by several factors such as demography and urban lifestyle (Vergera and Tchobanoglous, 2012). This figure is estimated to keep increasing as the urbanization process continuous in Malaysia expected to be up to 36.8 million in 2040 (Department of Statistic Malaysia, 2013). Hence the consumption and disposal rates are escalating faster than Malaysia's utilities can handle. National Ministry of Urban Wellbeing, Housing and Local Government revealed in 2015, statistic of Malaysians produce an average of 30,000 tons of waste per day and only of 5 % of it are recycled. Over 10 years, from 2003 to 2013, the generation of municipal solid waste had increase to 91% (Clean Malaysia, 2015). As a result, most of the wastes are going into landfill.

Besides, waste collection in Malaysia cover almost all of the population in urban area. However, in rural area only 66% of the population covered (Hamatschek,E. 2010). As consequence, in rural area wastes are being dumped in rivers and street which lead to flooding and spread of disease. Currently, 176 of landfill are still operated while 114 of them have been closed (National Solid Waste Management Department, 2010). The number of solid waste disposal sites in Malaysia is tabulated in Table 1.

Table 2.1 Number of solid waste disposal sites in Malaysia (2010)

States	Landfills In Operation	Landfills Have Been Closed
Johor	15	21
Kedah	10	5
Kelantan	13	4
Melaka	2	5
Negeri Sembilan	8	10
Pahang	19	13
Perak	18	11
Perlis	1	1
Pulau Pinang	2	1
Sabah	21	1
Sarawak	49	12
Selangor	8	12
Terengganu	9	11
Federal Territories	1	7
Total	176	114
		290

Source ; (National Solid Waste Management Department, 2010)

A study indicates that in average a household in Malaysia generate waste and throw away around 0.5-0.8 kg uneaten food per day (Chien Bong et al, 2016). Statistic from Solid Waste Corporation of Malaysia (SWCorp) revealed that in 2015 food waste in Malaysia reaches 15,000 tonns daily, including 3000 tones that is still able for consumption and not supposed to be discarded (Malaysia Kini, 2016). Local Government Authority indicates in a study that food waste and other organic waste contribute 47% of the total waste generated, follow by paper 15%, plastics 14% and others the rest. The percentage of municipal solid waste composition in Malaysia are shows in Table 2.

Table 2.2 Municipal solid waste composition in Malaysia

Compositions/ Percentage(%)	2002	2003	2004	2005	2006	2007	2010
Food waste	32	56.3	37.4	49.3	45	42	43.5
Mixed plastic	16	13.1	18.9	9.7	24	24.7	25.2
Mix paper	29.5	8.2	16.7	17.1	7	12.9	22.7
Textiles	3.4	1.3	3.4	--	--	2.5	0.9
Rubber and leather	2	0.4	1.3	--	--	2.5	--
Wood	7	1.8	3.7	--	--	5.7	--
Yard wastes	--	6.9	3.2	--	--	--	--
Ferrous	3.7	2.1	2.7	2	6	5.3	2.1
Glass	5.5	1.5	2.6	3.7	3	1.8	2.6
Others	1.9	8.4	10.4	18.2	15	25.74	1.8
Total	100	100	100	100	100	100	100

(Source; Ministry of Housing and Local Government, 2011)

2.3 CURRENT WASTE MANAGEMENT PRACTICES IN MALAYSIA.

In context of Malaysia, solid waste is managed by the Ministry of Housing and Local Government (MHLG) with the participant of private sector as well. The Solid Waste and Public Cleansing Management Act 2007 are Malaysian laws which enacted to provide the guideline and regulate the management control of solid waste for the purpose of maintaining proper environmental health. Solid waste management started from the storage of household waste, commercial waste or industry waste within municipal area. Usually the household wastes stored are packed using variety sizes and color of plastic bags before discarded into large garbage bags. However, waste separations are not practiced by Malaysian household (Goh Ban Lee, 2011).