WHAT ARE THE CURRENT SCENARIOS OF SELANGOR HOUSEHOLDS' INTENTION TO PRACTISE SOLID WASTE SEGREGATION-AT-SOURCE?

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Abstract

Many people are now expressing their increased concern about serious environmental destruction as a result of human irresponsible environmental behaviour. The aim of this paper is to explore current scenarios of intention to practise solid waste segregation-at-source between households in Selangor. A total of 400 respondents in Selangor who aged 18 and above were employed to respond to bilingual research questionnaires. The results of the descriptive investigation indicated that plastic was the most major solid waste material segregated daily among the respondents. The majority of Selangor citizens surveyed had heard about and strongly supported this environmental policy. Approximately half of the sample agreed that the policy of solid waste segregation-at-source was extremely important in addressing serious negative global environmental issues. Unfortunately, due to a lack of awareness as well as insufficient technologies and facilities in their housing areas, one-fifth of the respondents had never intended to practise solid waste segregation-at-source in their daily lives. By realising ongoing challenges in the long-term implementation of solid waste segregation-at-source in Malaysia, this current research therefore provides an essential opportunity to explore the importance of having the intention to practise solid waste segregation-at-source among Malaysian citizens and of enriching existing local literature.

Keywords: Households; Intention; Selangor; Solid waste segregation-at-source

Abstrak

Kini, ramai yang menunjukkan keprihatinan yang tinggi terhadap masalah pemusnahan alam sekitar yang serius akibat tingkah laku manusia yang tidak bertanggungjawab terhadap alam sekeliling. Tujuan kajian ini adalah untuk meneroka senario semasa tentang niat pengamalan pengasingan sisa pepejal di punca antara isi rumah di Selangor. Seramai 400 orang responden di Selangor yang berumur 18 tahun ke atas telah dipilih untuk menjawab soal selidik dwibahasa kajian ini. Hasil

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kajian deskriptif menunjukkan plastik merupakan bahan sisa pepejal paling utama diasingkan oleh responden pada setiap hari. Sebilangan besar rakyat Selangor dalam kajian ini pernah dengar dan amat menyokong dasar alam sekitar ini. Kira-kira separuh daripada sampel bersetuju bahawa dasar pengasingan sisa pepejal di punca adalah amat penting untuk menangani masalah alam sekitar global yang serius. Malangnya, oleh sebab kekurangan kesedaran serta teknologi dan kemudahan yang mencukupi di kawasan perumahan mereka, satu perlima responden tidak pernah berniat untuk mempraktikkan pengasingan sisa pepejal di punca dalam kehidupan harian mereka. Memandangkan cabaran berterusan dalam pelaksanaan jangka panjang pengasingan sisa pepejal di punca di Malaysia, kajian ini telah menghasilkan peluang yang penting untuk meneroka kepentingan niat pengasingan sisa pepejal di punca dalam kalangan rakyat Malaysia dan menambah khazanah kajian tempatan yang sedia ada.

Kata kunci: Isi rumah; Niat; Selangor; Pengasingan sisa pepejal di punca

Introduction

Malaysia is a transition country which is now experiencing fast population growth (Chua, Bashir, Tan, & Chua, 2019), rapid changing lifestyle (Ali, Ibrahim, Liyana, & Lam, 2019), high industrialisation and urbanisation (Lim, Lee, Bong, Lim, & Klemes, 2019) along with aggressive economic development (Yaacob, Ibrahim, & Nasir, 2019) as well as changes in consumption rate (Abas & Wee, 2014). These changes at the national development have raised several major environmental concerns (Jeong, Jang, Day, & Ha, 2014) in terms of energy security, the volume rate of municipal solid waste and daily solid waste generation in Malaysia (Ali, Nik Ibrahim, & Lam, 2019).

Besides that, rapid industrialisation and urbanisation altered the properties of solid waste generated in a nation. The characteristics of solid wastes in Malaysia described as a very high content of organic components with 45.0 per cent as compared to the other developed countries, including Japan (26.0%), United States (25.0%) and Germany (14.0%) (Samah, Manaf, Ahsan, Sulaiman, Agamuthu, & D'Silva, 2013). They also have a bulk density above 200 kg/m^3 and a high level of moisture content. Indeed, a social transformation, along with a greatly increased municipal solid waste generation discovered as the major consequence of Malaysia's rapid urbanisation. The amount of average daily solid waste disposed of has increased 100.75 per cent from 19 000 tonnes in 2005 to 38 142 tonnes of solid waste in 2018 (Cheng, Osman, Jusoh, & Lau, 2021). Therefore, a solid waste management system needs to be up-to-date in a bid to match with the composition, quantity as well as quality of solid waste.

Consequently, many people are now expressing their increased concern for severe environmental destructions due to human irresponsible environmentally behaviours.

In Malaysia, among the major factor which causes the issues of daily solid waste generation is the lack of solid waste segregation-at-source practice among the local households (Cheng, Osman, Jusoh, & Lau, 2019). Therefore, in 2015, the Malaysian Ministry of Housing and Local Government launched a solid waste segregation-at-source in stages to reduce a large amount of solid waste transferred to landfills. However, this environmental policy is still not implemented nationwide. As a result of the climate change crisis and depletion of natural resources, Malaysian consumers should have a self-reflection and take real action to manage their domestic waste systematically to improve the societal welfare, well-being, and quality of life of current as well as future generations (Ayob, Sheau-Ting, Abdul Jalil, & Chin, 2017; Masud *et. al*., 2016). For this reason, this paper is aimed to explore the current scenarios of intention to practise solid waste segregation-at-source among households in Selangor.

Literature Review

Several authors have done excellent analysis and offered historical insights on the chronology of solid waste management policy and action in the context of Malaysia. In the late 1970s, local authorities were responsible for solid waste transportation and street cleanliness under the Local Government Act 1976 (Sakawi, Gerrard, Andy, & Aiyub, 2002). At that moment, there is less attention to be drawn by the local authorities on solid waste segregation efforts, recycling strategies, and centralised waste management system (Jalil, 2010). Therefore, there was also no specific national plan for solid waste management yet. The implementation of the Action Plan for a Beautiful and Clean Malaysia (ABC Plan) by the Malaysian Ministry of Housing and Local Government in 1987 solely to establish and integrate the solid waste management system to maintain environmental sustainability, enhance public health, mentality towards town's cleanliness, and reduce the volume of solid waste generation via recycling (Manaf, Samah, & Zukki, 2009).

Recycling programme firstly launched in Malaysia since 1993 but it failed in getting much significant progression in it. Hence, it was re-launched by the Malaysian Ministry of Housing and Local Government in December 2000 (Manaf *et al*., 2009). This situation is because the first recycling programme cannot be considered as a successful environmental protection programme due to the lukewarm attitude and lack of households' participation (Cheng, Osman, Jusoh, & Lau, 2020).

However, the effort for recycling programme at national level is then carried forward to the subsequent Malaysian Plans, including Third Outline Perspective Plan (2001-2010), Integrated Solid Waste Management (2001), National Strategic Plan for Solid Waste Management (2005), Master Plan on National Waste Minimisation (2006), Solid Waste and Public Cleansing Management Act (2007), Scheme for Household Waste Management (2011), and enforcement of Act 672 (2011). In accordance with

the effort of government authority to have a better solid waste management, Malaysian Ministry of Housing and Local Government also declared 11th of November as the National Recycling Day which aims to reach the national recycling target of 22.0 per cent (Afroz, Rahman, Masud, and Akhtar, 2017) as well as 100 per cent recovery for the urban waste segregation-at-source by the year of 2020 (Bong, Ho, Hashim, Lim, Ho, Tan, & Lee, 2017). Indeed, the best way in managing the waste generation should start from waste reduction at source (Almasi *et al*., 2017), that is, eliminate the generation of household solid waste at source and practise recycling behaviour for reuse or recovery the waste materials.

Generally, as of 30th September 2019, there were 142 disposal sites under the responsibility of Malaysian local authorities, whereby 19 out of 142 solid waste landfill sites characterised as sanitary landfill sites, 119 of which characterised as non-sanitary landfill sites whereas the remaining 4 of them classified as inert landfill sites. Surprisingly, Sarawak (43) recorded as the state with the most non-sanitary landfill sites. It then followed by Sabah (21) and Perak (15) but there are none municipal landfill sites in Wilayah Persekutuan Kuala Lumpur and Wilayah Persekutuan Putrajaya.

Ultimately, in terms of pro-environmental research, by considering the trends of solid waste management in Malaysia, the concept of recycling and waste segregation-at-source is only recently introduced (Moh & Manaf, 2014). Hence, there is still lacking useful and applicable information in this specific field of research, especially in the local context. This situation can be seen from most of the previous research is solely focusing on recycling (Tiew, Basri, Watanabe, Zain, Er, & Deng, 2019), sustainable development (Macovei, 2015; Musa, Yacob, & Abdullah, 2019; Otitoju & Seng, 2014; Wan & Shen, 2015) as well as sustainable food products buying intention (Yogananda & Nair, 2019). In addition to that, despite the implementation and planning of transformative recycling and solid waste segregation-at-source strategies, there are still many challenges to achieve the aim of recycling and solid waste segregation-at-source practise in order to accomplish the goal of achieving the national recycling target of 22.0 per cent by 2020 (Moh & Manaf, 2014). By realising the scarce knowledge and research within this field, this current research provides an essential opportunity to investigate the knowledge gaps and its literature.

Methodology

This current research implemented a quantitative approach under the positivism research paradigm, which developed a set of the administrated bilingual questionnaire as the research instrument. Indeed, this kind of research paradigm allowed a social science researcher to understand the phenomenon by exploring the relationship between an independent variable and one or more dependent variables through measurement, sampling, and application of questionnaire (Taylor & Medina,

2011). As a result, 400 respondents in Selangor who aged 18 and above were systematically selected to respond to a set of self-completion questionnaire, which determined by a sample size determination equation proposed by Yamane (1967).

The present data collection was conducted in Selangor. Selangor is one of the states in Malaysia. It is in the central part of the west coast of Peninsular Malaysia. Perak, Pahang, and Negeri Sembilan are located to the north, east, and south of Selangor, respectively. Federal Territory of Kuala Lumpur and Federal Territory of Putrajaya are in Selangor, too. In addition to that, there are nine districts in Selangor, namely, Sabak Bernam, Ulu Selangor, Kuala Selangor, Gombak, Ulu Langat, Petaling, Klang, Kuala Langat, and Sepang. Hence, these nine districts would be the coverage area for the present research.

Selangor was chosen as the research location due to several reasons. Firstly, Selangor has the highest density of population as compared to the other states in this country. It has 6 528 400 people with a population density of 819/km^2 (Department of Statistics Malaysia, 2020). In terms of mean monthly household consumption expenditure, the households in Selangor also experience the highest consumption rate as compared to the other states in Malaysia. In 2016, Selangor recorded the highest mean monthly household consumption expenditure (RM5183). It was followed by Melaka (RM4374), Penang (RM4190), and Johor (RM4148). Meanwhile, the other states recorded the mean monthly household consumption expenditure below the national level (RM4033) (Department of Statistics Malaysia, 2017).

Next, Selangor undergoes the most aggressive economic development in Malaysia. Selangor is also a state which undergoes the greatest urbanisation as compared to the other states in this country. According to State Socioeconomic Report 2018, Selangor recorded a contribution of 23.7 per cent to the national gross domestic product in 2018. It followed by Sarawak (9.7%), Johor (9.6%), Pulau Pinang (6.7%), and Sabah (6.2%). Selangor (6.8%) also grew at a faster pace than the national growth (4.7%) in 2018 as compared to Johor (5.6%), Perak (5.3%), and Pulau Pinang (5.1%) (Department of Statistics Malaysia, 2019).

Apart from that, Ministry of Energy, Science, Technology, Environment and Climate Change and GreenTech Malaysia were committed to establishing low carbon zones in the state capital and major urban areas, which including Selangor via The Low Carbon Cities 2030 Challenge. One of the goals of this initiative was to accelerate the transformation of the cities into low carbon cities by building up the exposure and awareness amongst the public, in general, to reduce emissions from the generation of waste that ends up in landfills. Therefore, Selangor is potential to transform into a low carbon city which is environmentally sustainable, while meeting the social and economic needs of the residents (Ministry of Energy, Science, Technology, Environment and Climate Change, 2019).

Beginning 1st September 2015, Ministry of Housing and Local Government has implemented the compulsory solid waste segregation-at-source in stages in Johor, Melaka, Negeri Sembilan, Kedah, Perlis, Kuantan, Federal Territory of Kuala Lumpur and Federal Territory of Putrajaya under Solid Waste Management and Public Cleansing Act 2007 (Act 672). To fulfil the present research scope, that is, to cater to the state that is not yet implementing the policy, Selangor was selected to carry out this research.

To conclude, Selangor has the potential to be an ideal location to conduct this current research because of its highest density of population, households' highest consumption rate, aggressive economic development, greatest urbanisation, potential to be transformed to a low carbon city as well as its unique geographical background. Therefore, Selangor was chosen to highlight the attitude, subjective norm, environmental concern, environmental knowledge, and households' intention to practise solid waste segregation-at-source in Selangor, Malaysia.

Instrumentation

The quantitative data of this research were collected by using a self-administered bilingual questionnaire for gaining a general overview on the current scenarios of Selangor households' intention to practise solid waste segregation-at-source. The questionnaire was set in both open-ended and closed-ended questions which consisted of two sections. Section A was on respondent's demographic characteristics and Section B contained general questions to explore the current patterns of intention to practise solid waste segregation-at-source in Selangor, Malaysia.

In addition to that, Section A contained the questions on socio-demographic profile of respondents which including sex, age, marital status, ethnicity, highest academic qualification, and monthly household income. Meanwhile, Section B included seven closed-ended questions to explore the general trend of Selangor's households to practise solid waste segregation-at-source. The whole section was modified from online pamphlets uploaded by Ministry of Housing and Local Government in 2015. Respondents were required to give their opinions based on the options listed corresponding to all the scenarios in this section. These scenarios were described in a general way. These questions included the awareness of solid waste segregation-at-source policy, the important level of solid waste segregation-at-source, frequency of practising solid waste segregation-at-source, medium to obtain related information, the most major daily segregated solid waste material, the most major challenge in practising solid waste segregation-at-source and the most major motivator in practising solid waste segregation-at-source (Cheng et al., 2019). Consequently, all the gathered quantitative data were then computed and analysed by using IBM Statistical Package for the Social Sciences (SPSS) Statistics Version 26.0.

Results and Discussions

Respondents' demographic characteristics

There were 400 respondents involved in this research. The demographic characteristics of respondents including sex, age, marital status, ethnicity, highest academic qualification, and monthly household income is disclosed in Table 1.

Table 1: Demographic Characteristics of the Respondents [a], N = 400

Demographic Characteristics	Number of Respondent	Percentage (%)
Sex		
Male	148	37.0
Female	252	63.0
Age (years old) [a]		
≤ 20	7	1.8
21 – 30	177	44.3
31 – 40	39	9.8
41 – 50	93	23.3
51 – 60	73	18.3
> 61	11	2.8
Marital Status [a]		
Never been marries	260	65.0
Married	137	34.3
Widowed	0	0.0
Divorced	2	0.5
Separated	1	0.3
Ethnicity [a]		
Bumiputera	291	72.8
Chinese	95	23.8
Indian	8	2.0
Others	6	1.5
The Highest Certificate Obtained at School, College or University [a]		
UPSR	0	0.0
LCE / *SRP* / *PMR* / *PT3*	0	0.0
MCE / *SPM* / *SPM(V)*	3	0.8
Certificate / HSC / *STP* / *STPM*	66	16.5
Diploma	11	2.8
Bachelor's Degree	278	69.5
Master or Ph.D.	42	10.5

Table 1 (continues)

Demographic Characteristics	Number of Respondent	Percentage (%)
Monthly Household Income [a]		
≤ RM3000	186	46.5
RM3001 – RM5000	99	24.8
RM5001 – RM7000	44	11.0
RM7001 – RM9000	20	5.0
> RM9000	51	12.8

Note: Sd = Standard deviation; N = Total number of respondents;
[a] = Totals do not sum to 100.0 due to rounding.

As presented in Table 1, among the 400 respondents, there was 37.0 per cent male and 63.0 per cent female. Most of the respondents were never been married (65.0%) and aged between 21 and 30 (44.3%). The majority of respondents were Bumiputera with 72.8 per cent, Chinese with 23.8 per cent, and Indian with 2.0 per cent. In terms of the respondent's highest certificate obtained at school, college or university, about two-thirds of them were a bachelor's degree student (69.5%). Lastly, regarding respondents' monthly household income, there were only 5.0 per cent of respondents whose monthly incomes was ranged between RM7001 and RM9000 in the research.

General questions on the respondents' intention to practise solid waste segregation-at-source

The descriptive analysis regarding general questions on the intention to practise solid waste segregation-at-source was indicated in Table 2. The items in this section were set in a general manner to reflect the awareness of solid waste segregation-at-source policy, the important level of solid waste segregation-at-source, frequency of practising solid waste segregation-at-source, medium to obtain related information, the most major daily segregated solid waste material, the most major challenge in practising solid waste segregation-at-source, and the most major motivator in practising solid waste segregation-at-source in every day's life.

Table 2: Distribution of General Questions on the Solid Waste Segregation-at-Source [a], N = 400

Item	Number of Respondent	Percentage (%)
The Awareness of Solid Waste Segregation-at-Source Policy [a]		
Just heard of it	67	16.8
Heard of it and support it	265	66.3
Heard of it but troublesome	38	9.5
No idea	30	7.5

Table 2 (continues)

Item	Number of Respondent	Percentage (%)
The Importance Level of Solid Waste Segregation-at-Source [a]		
Extremely not important	3	0.8
Not important	4	1.0
Unsure	20	5.0
Important	177	44.3
Extremely important	196	49.0
Frequency of Practising Solid Waste Segregation-at-Source [a]		
Never	88	22.0
Once in the past 6 months	38	9.5
Twice in the past 6 months	30	7.5
Thrice in the past 6 months	19	4.8
Once a month	58	14.5
Fortnightly	17	4.3
Once a week	66	16.5
Twice a week	25	6.3
Every day	59	14.8
Medium to Obtain Related Information [a]		
Advertisement	78	19.5
Printed materials	61	15.3
Press release wire	37	9.3
Search engine optimisation	34	8.5
Social networking website	74	18.5
Personal social circles	54	13.5
Public engagement	62	15.5
The Most Major Daily Segregated Solid Waste Material [a]		
Paper	53	13.3
Plastic	95	23.8
Glass / ceramic	11	2.8
Metal / steel / aluminium cans	9	2.3
Electronic waste / small electronic appliances	23	5.8
Leather / rubber / shoes / fabric	21	5.3
Hazardous waste	57	14.3
Bulky waste	51	12.8
Garden / farm waste	80	20.0

Table 2 (continues)

Item	Number of Respondent	Percentage (%)
The Most Major Challenge in Practising Solid Waste Segregation-at-Source [a]		
Insufficient technologies and facilities	92	23.0
Lack of recycling market	30	7.5
Insufficient monetary incentives	23	5.8
Insufficient enforced regulations	58	14.5
Lack of awareness	197	49.3
The Most Major Motivator in Practising Solid Waste Segregation-at-Source [a]		
Moral support	41	10.3
A clear and comprehensive explanation	36	9.0
Availability of practical waste bins at home	91	22.8
The systematic practice of solid waste management	100	25.0
Gifts and rewards	132	33.0

Note: N = Total number of respondents; [a] = Totals do not sum to 100.0 due to rounding.

As shown in Table 2, most of the respondents (66.3%) just heard of the solid waste segregation-at-source policy and they supported it very much. Surprisingly, there was 7.5 per cent of them absolutely had no idea about this policy. There was also 16.8 per cent of the respondents just heard of it. The remaining number of respondents had heard of it. However, they found that solid waste segregation-at-source was troublesome to them.

In terms of the importance level of solid waste segregation-at-source, out of 400 respondents who participated in this research, there was 49.0 per cent of the respondents agreed that this practice is extremely important to them. There was also 5.0 per cent of respondents unsure about the importance level of this practice. Meanwhile, there were 44.3 per cent and 1.0 per cent of respondents who pointed out their opinion on such topic as “important” and “not important”, respectively throughout the research. There was only 0.8 per cent of the surveyed respondents in Selangor claimed that the solid waste segregation-at-source was extremely not important to them.

As the findings were shown in Table 3, there was 22.0 per cent of respondents who had indicated that they never practise solid waste segregation-at-source in the past six months. However, it was worth to highlight that the percentage distribution of “every day” (14.8%) was slightly higher than “once a month” (14.5%). Meanwhile, there was a marginal group of the Selangor households who claimed that had practised the solid waste segregation-at-source fortnightly (4.3%) in the past six months.

In pertinent to the medium in obtaining information of solid waste segregation-at-source, the advertisement from radio, television and internet (19.5%) and social networking website (18.5%) were denoted as the two predominant groups to receive that related information, respectively. Subsequently, there was 15.5 per cent of the 400 respondents who had reported that they received the information through their daily public engagement such as schools, community centres, government and non-governmental organisations while 15.3 per cent of which through the printed materials such as newspapers, magazines, flyers, posters and catalogues. The search engine optimisation was proved as the least preferred way to receive the information of solid waste segregation-at-source (8.3%) among the respondents.

By corresponding to the most major daily segregated solid waste material, there was approximately one-fifth of the total respondents (23.8%) who had responded that plastic as the most major solid waste material in their daily routine. This percentage distribution was further followed by garden or farm waste (20.0%), hazardous waste (14.3%) and paper (13.3%). However, there were just nine surveyed Selangor households who had stated that the metal, steel and aluminium cans as their major daily segregated solid waste material.

Based on the information in Table 2, out of the total 400 respondents who involved in the research, about half of them (46.3%) revealed that lack of awareness as the most major challenge that discouraged them to practise solid waste segregation-at-source. It was then followed by “insufficient technologies and facilities” (23.0%) and insufficient enforced regulations” (14.5%). Nevertheless, there was only 5.8 per cent of the respondents who had claimed that insufficient monetary incentives as their most major challenge in practising solid waste segregation-at-source.

Lastly, by deriving the figures depicted in Table 2, “gifts and rewards” was denoted by one-third of the total respondents as the most major motivator that drove them to practise solid waste segregation-at-source. This fraction was followed by “the systematic practice of solid waste management” and “availability of practical waste bins at home” which representing the 25.0 per cent and 22.8 per cent of the respondents, respectively. There was a minority of surveyed Selangor households (9.0%) who had indicated that “a clear and comprehensive explanation” as the most major motivator to practise solid waste segregation-at-source in their daily routine.

As a conclusion, there was a higher percentage distribution of the total number of respondents who had heard of the solid waste segregation-at-source policy via advertisement and they totally supported it. Plastic was the most major daily segregated solid waste material among the surveyed respondents. Due to lack of awareness among respondents, even though they agreed that solid waste segregation-at-source was extremely important to them, but they never practise it in

the past six months. Hence, gifts and rewards could be applied as the core motivator for citizens to perform solid waste segregation-at-source.

For the best social sciences researcher's knowledge in the field of consumer sciences, there was no trail of previous research which aimed to focus on the general perspective of local households regarding the intention to practise solid waste segregation-at-source in the context of Selangor, Malaysia. Hence, this current research is pioneer research which evaluates and discusses these respective elements in particular research.

Conclusion, Recommendation, Limitation, and Contribution of Research

Of the research population, there was 37.0 per cent were male and 63.0 per cent were female. The researchers also concluded that there was a higher percentage of female Bumiputera respondents between the ages of 22 and 31. Most of them were a bachelor's degree student and never been married. Throughout the research, the highest proportion of monthly household income was found to below RM3000, with a distribution of 46.5 per cent.

Finally, plastic (23.8%) was the most major daily segregated solid waste material among the surveyed Selangor's households. It was worth to emphasise that even though the solid waste segregation-at-source policy is still not mandatory at Selangor yet, but there was 66.3 per cent of the Selangor citizens had heard of this environmental policy and supported it very much. In addition to the awareness level among the Selangor citizens, there was 49.0 per cent of the whole sample agreed that the solid waste segregation-at-source policy was extremely important to manage the severe negative global environmental issues. Unfortunately, due to lack of awareness (49.3%) as well as insufficient technologies and facilities (23.0%) at their housing precincts, there was still 22.0 per cent of the surveyed respondents never have the intention to practise solid waste segregation-at-source in their every day's life.

In terms of recommendation for future research, instead of the ordinary self-administrative bilingual questionnaire, it is recommended that future researcher can innovate different mode of instrumentation to evaluate the solid waste segregation related-research scope (Ayob et al., 2017). For example, a researcher can provide different types of waste bins to potential respondents. Before the data collection process started, the researcher can place these waste bins in the residential units to observe the different tends of domestic solid waste segregated by the respondents at a certain period of time. After the first phase of data collection, researcher and researcher field assistants can provide a series of talks and demonstration to the respondents involved in the research to sharpen their skills to perform solid waste segregation-at-source so as to increase their confidence level and intention to

exercise this practice. The similar procedures then are taken for the second phase of data collection. At the end of the research, the data comparison can be made between the first phase and second phase of data collection in terms of the solid waste compositions and volume of solid waste segregated at each residential unit.

However, the research limitation should be remarked because it could potentially affect the quality of the present research outputs. The current research confines itself to exploration and examination of the current scenarios of intention to practise solid waste segregation-at-source among households in Selangor, Malaysia. Hence, this research only prominence in the nine districts of Selangor, which excluding another twelve states and three federal territories in Malaysia before the commencement of this research. Although the present research location will not be large enough to cover to the whole area of Malaysia, however, it does deliver some useful and important information about the current trends of the intention to carry out solid waste segregation-at-source among male and female households in the particular research location.

Ultimately, from the perspective of contribution of the research, to test the best knowledge, there is no specific research which primarily focusing on the current scenario of household's intention to practise solid waste segregation-at-source that can be found in the context of Malaysia (Masud et al., 2016). The ongoing challenges in implementing solid waste segregation-at-source for a long-term in Malaysia still require a bigger and clearer picture towards the current scenario to raise the rate of effectiveness and efficiency of this policy. Therefore, this research has assumed that it has become a necessity in a bid to explore the importance to have the intention to practise solid waste segregation-at-source among Malaysian citizens.

References

Abas, M. A. & Wee, S. T. (2014). The issues of policy implementation on solid waste management in Malaysia. *International Journal of Conception on Management and Social Sciences*, *2*(3), 12-17.

Afroz, R., Rahman, A., Masud, M. M., & Akhtar, R. (2017). The knowledge, awareness, attitude and motivational analysis of plastic waste and household perspective in Malaysia. *Environmental Science and Pollution Research*, *24*(3), 2304-2315.

Ali, R. A., Nik Ibrahim, N. N. L., & Lam, H. L. (2019). Conversion technologies: Evaluation of economic performance and environmental impact analysis for municipal solid waste in Malaysia. *Processes*, *7*(10), 752-765.

Almasi, A., Dargahi, A., Mohammadi, M., Asadi, F., Poursadeghiyan, M., Mohammadi, S., ..., & Yarmohammadi, H. (2017). Knowledge, attitude and performance of barbers about personal health and occupational health. *Archives of Hygiene Sciences*, *6*(1), 75-80.

Ayob, S. F., Sheau-Ting, L., Abdul Jalil, R., & Chin, H. C. (2017). Key determinants of waste separation intention: Empirical application of TPB. *Facilities*, *35*(11/12), 696-708.

Bong, C. P. C., Ho, W. S., Hashim, H., Lim, J. S., Ho, C. S., Tan, W. S. P., & Lee, C. T. (2017). Review on the renewable energy and solid waste management policies towards biogas development in Malaysia. *Renewable and Sustainable Energy Reviews*, *70*, 988-998.

Cheng, K. W., Osman, S., Jusoh, Z. M., & Lau, J. L. (2019). Instrument development on measuring Malaysian households' intention to practise solid waste segregation-at-source. *International Journal of Engineering and Advanced Technology*, *8*(5C), 1390-1400.

Cheng, K. W., Osman, S., Jusoh, Z. M., & Lau, J. L. (2020). Intention to practise solid waste segregation-at-source: Attitude, descriptive norm, injunctive norm, and environmental knowledge. *Malaysian Journal of Consumer*, *34*, 119-147.

Cheng, K. W., Osman, S., Jusoh, Z. M., & Lau, J. L. (2021). Multidimensional factors that influence the intention to practice segregation-at-source of solid waste: An empirical study. *Management Science Letters*, *11*(2), 379-390.

Chua, H. S., Bashir, M. J. K., Tan, K. T., & Chua, H. S. (2019). A sustainable pyrolysis technology for the treatment of municipal solid waste in Malaysia. In *AIP Conference Proceedings*, *2124*(1), 20016. AIP Publishing LLC.

Department of Statistics Malaysia. (2017). Press Release – Report on Household Expenditure Survey 2016. Retrieved on October 23rd, 2020 from https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=323&bul_id=WnZvZWNVeDYxKzJjZ3RlUVVYU2s2Zz09&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09

Department of Statistics Malaysia. (2019). State Socioeconomic Report 2018. Retrieved on October 23rd, 2020 from https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=102&bul_id=a0c3UGM3MzRHK1N1WGU5T3pQNTB3Zz09&menu_id=TE5CRUZCblh4ZTZMODZIbmk2aWRRQT09

Department of Statistics Malaysia. (2020). *Pocket Stats Selangor Quarter 4 2019*. Putrajaya: Malaysian Ministry of Economic Affairs.

Jalil, M. A. (2010). Sustainable development in Malaysia: A case study on household waste management. *Journal of Sustainable Development*, *3*(3), 91-102.

Jeong, E., Jang, S. S., Day, J., & Ha, S. (2014). The impact of eco-friendly practices on green image and customer attitudes: An investigation in a café setting. *International Journal of Hospitality Management*, *41*, 10-20.

Lim, L. Y., Lee, C. T., Bong, C. P. C., Lim, J. S., & Klemes, J. J. (2019). Environmental and economic feasibility of an integrated community composting plant and organic farm in Malaysia. *Journal of Environmental Management*, *244*, 431-439.

Macovei, O. I. (2015). Applying the theory of planned behaviour in predicting pro-environmental behaviour: The case of energy conservation. *Acta Universitatis Danubius. Economica*, *11*(4), 15-32.

Manaf, L. A., Samah, M. A. A., & Zukki, N. I. M. (2009). Municipal solid waste management in Malaysia: Practices and challenges. *Waste Management*, *29*(11), 2902-2906.

Masud, M. M., Al-Amin, A. Q., Junsheng, H., Ahmed, F., Yahaya, S. R., Akhtar, R., & Banna, H. (2016). Climate change issue and theory of planned behaviour: Relationship by empirical evidence. *Journal of Cleaner Production*, *113*, 613-623.

Ministry of Energy, Science, Technology, Environment and Climate Change. (2019). Low Carbon Cities 2030 Challenge, LCC2030C. Retrieved on February 23rd, 2020 from https://www.mestecc.gov.my/web/en/news/cabaran-bandar-rendah-karbon-2030-low-carbon-cities-2030-challenge-lcc2030c/

Moh, Y. C. & Manaf, L. A. (2014). Overview of household solid waste recycling policy status and challenges in Malaysia. *Resources, Conservation and Recycling*, *82*, 50-61.

Musa, H. D., Yacob, M. R., & Abdullah, A. M. (2019). Delphi exploration of subjective well-being indicators for strategic urban planning towards sustainable development in Malaysia. *Journal of Urban Management*, *8*(1), 28-41.

Otitoju, T. A. & Seng, L. (2014). Municipal solid waste management: Household waste segregation in Kuching South City, Sarawak, Malaysia. *American Journal of Engineering Research*, *3*(6), 82-91.

Sakawi, Z., Gerrard, S., Andy, P. J., & Aiyub, K. (2002). Policy, challenges and future prospect of solid waste management in Malaysia. In *Proceeding on International Sustainable Development Research Conference*. University of Manchester (pp. 8-9).

Samah, M. A. A., Manaf, L. A., Ahsan, A., Sulaiman, W. N. A., Agamuthu, P., & D'Silva, J. L. (2013). Household solid waste composition in Balakong City, Malaysia: Trend and management. *Polish Journal of Environmental Studies*, *22*(6), 1807-1816.

Taylor, P. C., & Medina, M. (2011). Educational research paradigms: From positivism to pluralism. *College Research Journal*, *1*(1), 1-16.

Tiew, K. G., Basri, N. E. A., Watanabe, K., Zain, S. M., Er, A. C., & Deng, H. (2019). Higher educational institutions recycling management in Malaysia. *International Journal of Business and Society*, *20*(1), 277-285.

Wan, C. & Shen, G. Q. (2015). Encouraging the use of urban green space: The mediating role of attitude, perceived usefulness and perceived behavioural control. *Habitat International*, *50*, 130-139.

Yaacob, M., Ibrahim, M. H., & Nasir, Z. M. (2019). Solid Waste Management in Malaysia: The Perspectives of Non-governmental Organizations (NGOs) and Youths on Consumers' Commitment. In *Environmental Sustainability and Education for Waste Management* (pp. 27-41). Singapore: Springer.

Yamane, T. (1967). *Elementary Sampling Theory*. New Jersey: Prentice Hall.

Yogananda, A. P. Y. & Nair, P. B. (2019). Green food product purchase intention: Factors influencing Malaysian consumers. *Pertanika Journal of Social Sciences and Humanities*, *27*(2), 1131-1144.

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