Framing the Household Sustainable Consumption and Lifestyle in Malaysia: The Policy Implications

by Prima Wahyu Titisari

Framing the Household Sustainable Consumption and Lifestyle in Malaysia: The Policy Implications

Irina Safitri Zen*, Mansoureh Ebrahimi, Prima Wahyu Titisari and
Yani Hendrayani

Abstract--- Given the plethora of choices and the abundance of products available in the market, household roles in practicing sustainable consumption and lifestyle in their daily life is crucial. As a newly industrialized country, Malaysian consumers are experiencing high consumerism spirits due to strong purchasing power. Hence, reoriented the complexities of consumption patterns towards sustainability requires defragmentation, prioritization and gradually change to find for more practical and strategic actions to overcome the barriers and policy intervention. Thus, this study aims to explore and analyze to what extend the sustainable consumption and lifestyle are being practices, ii. What are the barriers to foster the gradual changes to performs such behavior and iii.how the complexities of consumption structure to create the conducive environmental for behavioral changes towards sustainable behaviour. The study found the contextual factors of availability green products and barriers need to overcome as to develop the household sustainable lifestyle. Most of the household sustainable lifestyle practices and purchase are driven by the economic rationalities rather than environmental reasons. The complexities of interrelated of consumption are structured into an integrative framework of household sustainable lifestyle and consumption which recognized the contextual factors sustainable purchase and barriers to strengthen the sustainable behavior. From this study, four points of policy interventions level are recognized to overcome the barriers in performing sustainable lifestyle and consumption. The four are product innovation, technical innovation, governance approaches and knowledge, awareness and advocacy. Various policy instruments related to sustainable lifestyle and consumption are proposed by considering the contextual factor of sustainable consumption and lifestyle in Malaysia.

Keywords--- Household, Sustainable Lifestyle, Sustainable Consumption, Consumer, Behaviour.

I. INTRODUCTION

Early effort captured the unsustainable pattern stated in Chapter Four of Agenda 21 declared that "the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty ad imbalances" (United Nations 1992). Given that contextual background of environmental and social problems that underlying the modern consumer lifestyle, two-pronged approach of solution needed are coming from consumption and production. This paper focus on sustainable consumption patterns that affect sustainable lifestyles. Early

Irina Safitri Zen, Department of Urban & Regional Planning, Kuliyyah of Architecture and Environment Design, International Islamic University Malaysia (IIUM), Jalan Gombak, Kuala Lumpur, Malaysia. E-mail: irinazen@iium.edu.my*
Mansoureh Ebrahimi, School of Islamic Civilization, Faculty of Social Science, Universiti Teknologi Malaysia (UTM), Johor Bahru, Malaysia. E-mail: mansoureh@utm.my
Prima Wahyu Titisari(c) (c) Department of Biologi, Faculty of Education, Universitas Islam Riau, Pekanbaru, Riau, Indonesia. E-mail: pw.titisari@edu.uir.ac.id
Yani Hendrayani, Faculty of Social and Political Science (FISIP), Universitas Pembangunan Nasional, Veteran, Jakarta, Indonesia. E-mail: yanihendrayani@upnvj.ac.id

concept of sustainable consumption (SC) proposed by the 1994 Oslo Symposium on Sustainable Consumption is *"trying to reduce the resource utilization in developed nations and highlight the human quality of life"*. Elusive concept of sustainable lifestyle is *"the use of services and related products that respond to basic needs that bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle so as not to jeopardize the needs of future generations"* (UNEP 2005). It covers all stages of life cycle from production to consumption as to find solutions over the ecological problems, that associated with industrial economic and consumerism (Dolan 2002) which requires support from the sustainable production and trade (Stern et al. 1997 and Thogersen 2005). Hence, advance technology helps in facilitating the availability of eco labelling products and services in the market (Saari, Baumgartner and Mäkinenet al. 2017). Eco products identify as one of important contextual factors to support sustainable consumption (Kast and Tanner 2003). Purchase energy-efficient products requires minimum actions compared to engaging energy saving behaviours per se (Sadalla and Krull 1995).Consumer purchasing close the gaps between green consuemrs's values and their behaviour (Young, W., Hwang, K., Mcdonald, S. and Oates, C. J., 2010). Moreover, the various aspect of sustainable purchase included in this study.

SC requires active individual behavioural changes that implicate consumption patterns (Owen 2000) through resource conservation (Banbury, Stinerock, and Subrahmanyan 2012) as important notion of the complex consumerism problems (Dolan 2002). SC stated as *"a concept that include changes in consumer behavior and lifestyles that requires consuming more efficiently, more responsibly, ethically or in other words consuming less"* (Gilg, Barr, and Ford 2005).In sort, is *"the context surrounding sustainable ways of living that incorporate other environmental actions from green purchasing and green lifestyle"* (Gilg, Barr, and Ford 2005). The last statement uses as our working definition, where consumption and lifestyle covers purchasing and daily practices. This study conducted by consider the local context of Malaysia to characterize the consumer into specific groups or niche.

Creation conducive environmental policy and legislative framework aims to preserves a state of the environment that protects habitats, safeguards ecosystem services and minimizes risks for human health from pollutants (National Collaborating Centre for Healthy Public Policy 2012). It's another contextual factors for government intervention in the creation of conducive environmental policy which translates into various sustainable initiatives. Such initiatives are product eco-labelling, economic incentives to correct externalities issue, promotes corporate social responsibility, CSR and responsible advertising, consumer behavioural campaigns to develop the green market.

The creation conducive environment for consumers' behavioural changes require multi stake holder involvement. Consumers' lifestyle recognizes as a result of collective micro/ individual actions to solve global environment concern such climate change (Dolan 2002).

Engaging the citizen sustainable lifestyle through social-psychological background helps to understand behavioural context to smooth the changes (Barr &Gilg 2006) especially in framing the attitudinal changes to foster behavioural changes (Barr 2011). For example, the socio-economic background of the consumers helps in strengthening the knowledge about fostering the green purchase for the Swiss consumers' (Tanner and Kast 2003). Solutions are outlined along with the themes of wants and needs which are increasingly met through the

consumption of goods and services (Bauman 1992), more than a pre-determined way of life (Bauman 1992; Chaney 1996; Featherstone 1987) and explain wider complexes of identity and affiliation (Chaney 1996). It is argued that lifestyles are about much more than the products and services that are consumed and gather valuable information from household are important for policy formulations. Hence, study about consumer's sustainable consumption and lifestyle is crucial to provide important information on the benefit of the product design and development for the manufacturer (Marchand and Walker 2008). Moreover, structure the complex interrelated issues surrounds sustainable consumptions is needed to strategize the policy intervention.

Consumption of the goods and services demonstrating social class (Miller 1995), wealth and identity where the goods consumed carry a message on the expression of values and desires as well as the way individuals are judged (Al-Swidi et al. 2014). Understanding the social value of lifestyles deepening the understanding on how to convey the environmental message that leads to behavioural changes (Al-Swidi et al. 2014; Giddens 1991; Musa, Khan, and AlShare 2015). Those values reflect in various sustainable consumption and lifestyle campaign such as promotion of healthy eating, anti-smoking, saving energy product and no plastic bag campaign which further helps in creating green consumer with sustainable purchase and lifestyle.

Background of the study highlights the effort taken by government in providing green market as conducive situation for the consumer behavioural changes. Content analysis on how several perspective of sustainable consumption referred to analyse to identify factors, context and pattern that matching the approaches in creating green market (Di Gregorio et al. 2017, Zen et al. 2013b). It is supported by the quantitative assessment from the survey result as intended to provide earlier indication on what is the barrier in consumers perform sustainable lifestyle. It is also analyse the conducive environment that stimulate changes in consumer behaviour through government intervention in creating conducive policy and legislative framework to facilitate industry develop eco-labelling product, green technology application for sustainable product innovation, economic / market incentives, encourage corporate environmental policies and advertisement, consumer information campaigns and product testing as a mechanism to communicate with the consumers and helps to develop the green market. These situational changes need a positive and negative feedbacks from consumers and have been applied in the analysis of environmental policy change (Daugbjerg2003; Repetto 2006).

II. PROBLEM STATEMENT

The first attempt to promotes sustainable consumption in household Malaysia start early since 2003which has documented under the Malaysia Consumer Master Plan (2003 – 2013) and aim to promote holistic consumer protection, to raise the level of consumer protection, promote ethical and responsible commerce, give priority to consumer education and to promote and support sustainable consumption (Ministry of Domestic Affairs, Co-operatives & Consumerisms 2003). This is developed based on the principles of sustainable development and consumption and protect consumer according to international standing. For implementation, the Ministry work closely with consumers association such as Federation of Malaysia Consumer Association (FOMCA), ERA Consumer and Consumer Association of Penang (CAP) to educate and change the pattern of consumer consumption

towards sustainable consumption which encourages self-protection among consumers, self-regulation among business and effective consumer protection by the government.

As response to climate change challenge, the Malaysia government produce the Green Technology policy which covers sustainable consumption and production. About 40 percent reduction of Carbon Emission by 2020 translated into a policy statement: '*Green Technology shall be a driver to accelerate the national economy and promote sustainable developmen*t' (Ministry of Energy, Green Technology & Water 2014). Government and industry play important role in creating green market by providing a sustainable product that requires green technology in sustainable production. The Malaysia Green Technology policy which consist of four basic pillars: economy, environment, social and energy, supports by five strategic thrust. One of the trusts emphasize on the change of patterns and behaviour of the consumers (Ministry of Energy, Green Technology & Water 2014). Under the third strategic thrust on sustainable consumption, the programs cover MyHijau, My Procurement and Green Portal were set up to provide the link between the industry and the consumers (www.greentechmalaysia.my/) and the consumers in a big scale such as institution. Hence, under Sustainable Production, the programs My Hijau Labelling function as communication tools to the consumers for the right contextual factor to accelerate towards pro-environmental behaviour.

The availability of green products in major leading supermarket and hypermarket in Malaysia also another contextual factor for green market and stimulus sustainable purchase. Several eco-labelling products are under the Standard Organic Malaysia (SOM) label for vegetable and fruit fresh product, Ministry of Agriculture (MOA) has been start since 1999. The Energy Efficiency Star Rating Label for energy efficiency products by Ministry of Energy, Water and Green Technology has been initiated in 2006 and the Eco-Label produce by Standard Industrial Research Institute of Malaysia (SIRIM). Furthermore, effort is needed to conduct to what extend the availability of the product stimulus the sustainable purchase.

Beside eco labelling product, several campaigns related with sustainable consumption and lifestyle conducted to support the creation of conducive environment for behavioural changes are; i. the Smart Consumer Campaign by the Ministry of Domestic Trade, Co-operatives and Consumerisms (MDTCC) in 2007, ii. the launched of environmentally product i.e. the energy efficiency product appliances in 2006 by the Ministry of Telecommunications, Green Technology and Water and iii. The launch of nationwide no plastic bag campaign in major supermarket/ hypermarket and retailer in 2009 by MDTCC which involves major hypermarket chain such as Tesco, Jusco and Carefour nationwide and retailers.

The Green Technology Council has been set up to form the National Green Technology Policy to enhance and foster the availability of saving energy product in the market that strengthen the development of green market. The effort has started with several green label products since late 1990s (National Renewable Energy Policy and Action Plan 2014). However, none of consumer's behaviour study conducted to analyse the effect that initiatives as individual level. It causes difficulties to formulate the policy formulation if the effort do not taken to analyse the existing effort.

III. RESEARCH QUESTIONS

Several research questions derive from the current facts above are stated bellow:

What are the sustainable practices in consumption and lifestyle?

Given that lifestyle include elements of choice which involve the best ways to live and to fulfil the needs of individual desire, this 'commodification' of lifestyles offers a plethora of consumption choices, hence the possibilities for different ways to live are myriad. Besides that, the focus ranges from the effort to meet basic needs, provide a better quality of life, minimize the use of natural resources and emissions of waste and pollutants over the life cycle without jeopardize the needs of future generations (Myers and Kent 2004), that complexities and interrelated issues push the questions, what are the sustainable practices in consumption and lifestyle?

What is the consumer's barrier to perform sustainable consumption?

Overcome consumers' barrier to perform sustainable consumption practices is another important mechanism to facilitate behavioural changes towards sustainable society as to reveal the contextual factors that inhibit or might facilitate the sustainable consumption at the household level. Several studies identified that human behaviour changes are subjected to numerous barriers (Frey and Foppa 1986; Gardner and Stern 1996; McKenzie-Mohr 2000; Zen and Siwar 2015). Weak in facilities or green product available can block environmentally friendly behaviour and undermine the influence of positive attitudes or values (Zen &Siwar 2015). The information gathered will help government to provide the right policy intervention as well as measures the effectiveness of their ability in providing the right facilities or program to create conducive environment for consumers' behavioral change. Hence, this study questions to what extend the personal and contextual factors of Malaysian consumer perform sustainable consumptionPlease replace this text with context of your paper.

How to structure the interrelated and complexities sustainable consumption?

The scope of household sustainable consumption research is therefore extremely wide, multi scale, incorporating everything that a person does in their life with all the social, economic and environmental impacts of their actions and consumption practices. From the product and services available, the average household consumes 4,300 products annually, with a large supermarket offering up to 12,000 different products (Burgess et al. 2003). This statistic, on the other hand, gives opportunity to provide green ecolabelling product as to reduce its' impact to the environment. Framing the wide range and complex issues surrounds the sustainable consumption and lifestyle practices is crucial to obtain more specific and targeted behavioural changes at individual level.

IV. PURPOSE OF THE STUDY

As explained above and to create conducive behavioural changes, provide the right contextual factors, several goals formulate for the study are:

4.1. What are the current practices of sustainable consumption and lifestyle by household in Malaysia?

4.2. What are the barriers to perform sustainable consumption and lifestyle?

4.3. What are the framework to foster the behavioural changes concerning the policy formulation that facilitate the changes?

V. RESEARCH METHODS

The study deployed the nationwide survey conducted in 2009 to represent household each state in Malaysia. The respondents are the consumer that represent household members with the age group 18 to 65 years. The households selected based on the three stages of sampling performed to get sample size as follows; the exact as follow: i. the area sampling by using randomize sample in urban and rural that has been identified based on the enumeration block (EB) from Census of Population and Housing of year 2000 which was created by the Malaysia Statistical Department, ii. the Probability Proportional to Size (PPS) sampling technique deploy targeted the sample size based on the housing size such as bigger sample of household was taken from the bigger housing area, and the second sampling stage adopt systematic sampling due to in complete sampling framework, and at last, iii. the sampling of each member of household has been chosen using the Kish Grid method. And finally, about 1250 sample gathered.

Sampling technique deployed is the stratified probability proportion to size sampling. It is a sampling methods that is utilize in sampling strata where the probability of certain sample of unit was chosen based on the variable determination rate e.g. population survey, population size which has been use as sample of unit (Burns & Bush 2005). According to this method, household sample number determine for each area or state differentiate by the total household number in each area or state. Due to that, state with bigger household size population will own bigger sampling numbers. The technique reduce e=standard error and avoid weightage (Burns & Bush 2005). In this research, study unit is household. Estimation of household member for each household in Malaysia is five (5). With a population size of Malaysia in 2006 is 26,640,000 (Buku Tahunan Jabatan Perangkaan 2006), the population target for the study is 5,328,000 households. Hence, respondents in this sample is any household member or a number of household unit from 5,328,000 of household unit from the population target. Household data was used in many socio-economic studies as household is the smallest decision maker i.e. family which can describe the demand pattern or purchase and consumer behaviour (Burns & Bush 2005).

In this study, factors affect the consumer's decision to practice sustainable lifestyle or consumption as well as purchase the products is the main variables. To predict the sample size, data variation from the main population need to take into account. As to consider the location or state in Malaysia and the urban and rural area, the stratified sampling technique deployed. By estimating the normal distribution, the formula used to predict the sample size is as follows:

$$n = \frac{Z^2 (pq)}{e^2} = \frac{1.96^2 (50 \times 50)}{2^2}$$

Notes:

n = sample size;

Z = statistic value Z at certain confidence level;

p = estimation percentage according to population;

q = 100 − p;

e = standard error

According to the sampling method deployed in most of consumer study, we decided to used 95 per cent of confidence level where bigger sample size is needed. Z value for 95 per cent of confidence level is 1.96. Percentage value for household performs sustainable consumption and lifetsyle predicted at 50 per cent which is the biggest variation obtain from the population. Standard error used is 2 per cent. By include all values in the above formula, sample size obtain is 2,450 respondent. Size sample distribution for each State diplay at Table 1.

As per total sample size (N) 2,450, the sample size determined for urban and rural was obtain from the Statistic Department, Population Estimation Year 2006 (Table 2). First, the household number determined as a basic of measurement, and Second the sampling size is calculated based on household number in Urban and Rural area for each state. It is obtained after the value of rate for urban and rural area towards the household shown in Table 2. After screening and questionnaire checked and includes the number of questionnaire gather, there are 1250 respondents are utilized for the further analysis.

Table 01.   Size Sample Distribution By the State

States	Population Number ('000)	Household Number	Urban Rate (%)	Rural Rate (%)	State Rate (%)	Sample Size Number
Johor	3,170.5	634.1	0.66	0.34	0.12	285.63
Kedah	1,882.0	376.4	0.40	0.60	0.07	169.55
Kelantan	1,530.7	306.1	0.33	0.67	0.06	137.90
Melaka	725.3	145.1	0.71	0.29	0.03	65.34
Negeri Sembilan	961.8	192.4	0.56	0.44	0.04	86.65
Pahang	1,454.9	291.0	0.43	0.57	0.05	131.07
Perak	2,283.0	456.6	0.59	0.41	0.09	205.67
Perlis	228.0	45.6	0.35	0.65	0.01	20.54*
Pulau Pinang	1,492.4	298.5	0.80	0.20	0.06	134.45
Sabah	2,997.0	599.4	0.50	0.50	0.11	270.00
Sarawak	2,357.5	471.5	0.49	0.51	0.09	212.39
Selangor	4,850.1	970.0	0.88	0.12	0.18	436.94
Terengganu	1,042.0	208.4	0.50	0.50	0.04	93.87
KL & Labuan	1,664.9	333.0	1.00	-	0.06	149.99
Malaysia	**26,640.1**	**5,328.0**			2,400	2,400

Notes. *Sample size added to 70

Table 02.   Sample Size for Urban and Rural Areaby the State

States	Household Number	Column Heading		
		State	Urban	Rural
Johor	634	286	189	97
Kedah	376	170	68	102
Kelantan	306	138	46	92
Melaka	145	65	46	19
Negeri Sembilan	192	87	49	38
Pahang	291	131	56	75
Perak	457	206	121	84
Perlis	46	71*	25*	46*
Pulau Pinang	298	134	108	27
Sabah	599	270	135	135
Sarawak	472	212	104	108
Selangor	970	437	385	52
Terengganu	208	94	47	47
KL & Labuan	333	150	148	2
Malaysia				
Total Sample Size	**5,328**	2,450	1,526	925

Source: Statistic Department, Household Number Year 2006

VI. FINDINGS & DISCUSSION

During the study conducted, sustainable lifestyle is a new terminology for Malaysia. Only about 26.0 percent of respondents (325 respondents) are aware about it. The percentage is slightly higher in urban area, 27 percent (338 respondents) than rural area 24.8 percent (310 respondents). Media play important function in educating household about awareness on sustainable lifestyle practices. The survey reveals that television as the main source of knowledge for household's sustainable consumption (69 % or 863 respondents). It is followed by newspaper 59.3 percent (741 respondents), radio 43.5 percent (544 respondents), brochure 28 percent (350 respondents) and magazines 23 percent (288 respondents). Moreover, simple cross tabulation conducted between consumers' level of education and the awareness of sustainable lifestyle shows an increasing awareness in the consumers' level of education. The awareness on sustainable lifestyle is higher among the professional worker (39% or 488 respondents), managerial and administrative (33% or 413 respondents), service worker (33% or 413 respondents) and student (36% or 450 respondents) than agriculture worker (8% or 100 respondents), operator (18% or 225 respondents) and housewives (25% or 313 respondents) both in urban and rural area.

Household's Sustainable Lifestyle Practices & Purchase

Although, the concept of sustainable consumption and lifestyle is elusive (Gilg, Barr, and Ford 2005, UNEP 2005), this study able to translate it into twelve, 12 household sustainable lifestyle practices (Table 12). The average of various sustainable lifestyle practices is show in higher percentage, 31.6 percent compared to the terminology it self, 26.0 percent. It shows that, household familiar with the sustainable practices compared to the knowledge on sustainable consumption. The top three of sustainable household daily practices are; i. switches off the light or electricity (69.8 % or 873 respondents), ii. resale recyclable item (42.6 % or 533 respondents) and iii. reuse the bottle or plastic bag for other purpose (42.2 % or 528 respondents) are shown higher percentage.

Table 03.　　　Sustainable Lifestyle Practices in Malaysia

Sustainable Lifestyle Practices	Percentage (%)	Frequency (n=1250)
1. Switch off the light or electricity if it not use.	69.8	873
2. Collect the old newspaper and magazines to resale.	42.6	533
3. Reuse the bottle or plastic bag for other purpose.	42.2	528
4. Educate and train children becomes a wise consumer and respect the environment.	35.8	450
5. Prioritize the environmental friendly service such as walk or use of bicycle for a short trip.	33.3	416
6. Prioritize environmental friendly services	29.2	363
7. Separate the recyclable items such as tin aluminium, paper, glass and plastic from other type of garbage.	27.3	341
8. Use of public transport to save the fuel usage.	26.9	336
9. Involve in recycling activity around the house or office or neighborhood.	22.9	286
10. Dispose of unuse handphone or battery in proper place or bin.	17.1	214
11. Bring your own bag when shopping to reduce the use of plastic bag.	16.6	208
12. Avoid the use of styrofoam that hardly to hancur and reduce the ozone layer.	15.6	195
Average	31.6	395

As a reciprocal action from the availability of green product in the market, the study assess the sustainable purchase. The consideration to take out the sustainable practices is due to less behavioural changes required to performs such behaviour. It is argued that this approach can be a mediator for further and drastic changes in household sustainably lifestyle changes (Sadalla and Krull 1995). Simple average perform produce slightly higher percentage of household sustainable lifestyle practices by 31.6% (Table 3) compared to sustainable purchase by 30.4% or 380 respondents (Table 4). Both tables show the underlying economic rational on the two categories of behavior. The economic reasons behind sustainable purchase and lifestyle can be a strong motivational factor for consumers performs sustainably rather than environment reason (Whitmarsh 2009).

The results may challenge the statement by Thøgersen (2005) *'it is not individually rational for a consumer to sacrifice short-term advantage for the common good'*. It is also neglecting the notion that people often do not act in the way predicted by rational choice theory. Consumers that have enough knowledge on the product they buy and its' direct implication say in terms of bill saving, will take actions accordingly (Yanow and Schwartz-Shea 2015). Buying a saving energy product (41.6%) (Table 4) is the least behavioral changes requirement compared to other sustainable practices such as separate recyclable items (27.3%), thus more preferable (Sadalla and Krull 1995). (Table 3). Similar buying pattern found in the 1600 of household survey in Devon, United Kingdom (Gilg, Barr, and Ford 2005). Household energy consumption reduced by about 9% if the households had chosen energy-saving products at higher prices and changed their consumption towards lower energy-intensity products (Vringer and Blok 2000).

Table 04.   Sustainable Purchase Practices

Sustainable Purchase Practices	Percentage (%)	Frequency (n=1250)
1. Buying energy saving bulp	41.6	520
2. Buying organic food or organic vegetables and fruits	32.1	401
3. Buying rechargeable battery	25.3	316
4. Buying environmentally product such as biodegradable detergent	22.5	281
Average	30.4	380

Consumer's decision on buying saving energy bulb resulted from their cognitive ability and their knowledge on the impact of their decision. This result simply explains more by the Theory of Reasoned Action by Ajzen and Fishbein (1988) and 'Theory of Planned Behavior' by Ajzen (2011) that interpret as the influence of people's perceptions about their own control over the situation. Moreover, purchasing energy-efficient technologies requires minimum consumers' behavioral changes (Sadalla and Krull 1995). Current effort from government by provide rebate on consumer's monthly electricity bill in Malaysia, helps in encouraging household to buy saving energy products. It is helps in creating conducive environment for behavioural changes to create conducive green market environment that showcase a higher level of commitment of government (Lafferty and Hovden 2003; Meadowcroft 2002). Furthermore, this action provides a basis for the formulation of more matured policy intervention to support long term plan for sustainable lifestyle society.

On the other side, green purchase reflects the socio technical transition, as part of the technological innovation, diffusion and the co evolution of technologies in the Malaysian context. The availability of green market in Malaysia such as local organic food began operating in 1997 (Musa, Khan, and AlShare 2015) supported by the

Malaysian consumers' awareness on the food safety while purchasing food products (Tey et al. 2008).This shown in about 32.1% of consumers *'Buying organic food or organic vegetables and fruits'* (Table 4). Contiguous effect may develop from one green sustainable lifestyle practices to another sustainable practices. The top four of consumer sustainable purchase and practices trigger to the other sustainable practices by overcoming the barriers. Specific consumer beliefs and practice predict environmentally friendly consumer behavior more accurately than does general environmental concern (Mainieri et al. 1997).

The top four products listed in Table 4, are identified as cheap product that may not need bigger purchase decisions making compared to the expensive of saving energy electrical appliances i.e. refrigerator and washing machine. These products also subject to more frequent purchase compared to the expensive product, With this consideration, this sustainable purchase emerge as *'a low hanging fruit'* approach for gradually behavioural changes at household or individual level. Beside, this result confirms the availability of green products to support the sustainable purchase, strategic and structural creative policy innovation is needed to strengthen the green market (Jackson 2008).

Barriers to Perform Household Sustainable Lifestyle

Although there is serious effort to establish the green market, eco-label to foster the sustainable lifestyle, the result of the survey found out higher average on the barrier to achieve the sustainable lifestyle. The top barriers in performing household sustainable lifestyle practices found in this study covers *'Higher price of the saving energy product'*(73.5%),*'Difficulties to get eco-product such as biodegradable plastic bag'* (70.4 %), *'Difficulties to get organic product'* (67.4%) and *Difficulties to find hand phone recycle bin'* (71.8%) and recycle bin (67.7%), subsequently (Table 3). Government roles in promoting economic incentives for cheaper ecolabel product price was seen as encouraging approach to facilitate sustainable consumption practices (Jackson 2008; Lafferty and Hovden 2003; Meadowcroft 2002).

The result in general portrays the external factors dominated the limitation of consumers in performing the sustainable lifestyle. It indicates the need for availability of green infrastructures and facilities to foster behavioral and lifestyle changes. Furthermore, the sustainable consumption behavior are studied the expensive price of saving energy product, the availability of recycle/ hand phone battery bin, difficulties to get the organic product, the convenience of public transport provided (Table 5).

Table 05.　　　　Barriers in Performing Sustainable Lifestyle Practices

Range of Barriers in Sustainable Lifestyle : Sustainable Purchasing & Practice	Percentage (%)	Frequency (n=1250)
1. The price of electronic environmental friendly product is more expensive.	73.5	919
2. Difficulties to find hand phone recycle bin.	71.8	898
3. Difficulties to get the biodegradable plastic bag	70.4	880
4. Difficulties to find recycle bin	67.7	846
5. Difficulties to get the Organic Product	67.4	843
6. No regulations for source separation	65.5	819
7. Less public waste bin	62.6	783
8. Less labelling for environmentally product	62.6	783
9. Less infrastructures for pedestrian walk	59.1	739
10. Inconvinience public transport	59.0	738
11. No time for source separation	55.6	695
Average	65.0	869

Framework of Sustainable Consumption, Lifestyle and Barrier and Its Policy Intervention

The top four sustainable practices also indicate the key role of household or consumers behavior in driving less environmental impact actions which need to be more emphasize. It is realized that people's choices, behaviors and lifestyles play a vital role in achieving sustainable development as one of the points of agreement to have emerged from international environmental policy debates over the last decade or so (Jackson and Michaelis 2003). Finally, based on the difference context of sustainable lifestyle described above, this paper differentiates into sustainable purchase and sustainable practices. It describes as a framework for consumers' sustainable lifestyle in Malaysia (Figure 1), where the details for each categories are explained details in Table 3 and Table 4, subsequently.
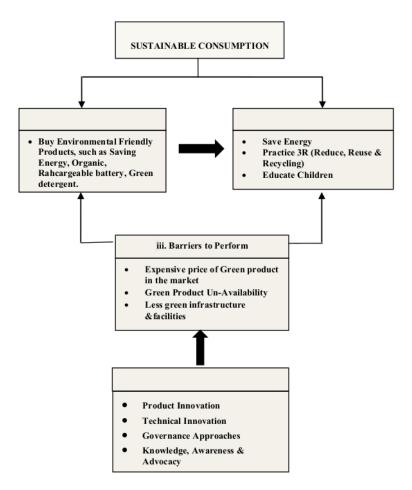

Figure 01.   Framework of Sustainable Consumption and Lifestyle in Malaysia and Its Policy Intervention

Based on the policies formulation at different interventions level; (i) sustainable behaviour – policies that need to be develop to encourage changes, i.e. mandatory source separation, prohibition on the use of plastic bags and Styrofoam, deposit refund system for use of battery and other type of recyclable items, provide integrated network for cycle and pedestrian walk and etc., (ii) sustainable purchase – cheaper prices for energy saving products,

rechargeable battery, biodegradable detergent and etc. (Figure 1). The basis of differentiation is also based on different behaviors, such as more effort required for behavioral changes required household sustainable practices and lifestyle while minimum effort to purchase green products. The first part involves the major changing to perform of sustainable lifestyle and the second effort required less behavioral changes but more on changing consumer buying habit or pattern or called it as sustainable purchasing. However, the result reveals the crucial roles of household in driving less environmental impact practices.

Contextual factors have two contradict functions; either inhibit or facilitate green purchases/ sustainable consumption. Previous studies conducted are conceptually based on an approach that human behavior is subjected to numerous barriers (Frey and Foppa 1986; Gardner and Stern 1996; McKenzie-Mohr 2000). From the several barriers or contextual factor inhibits consumers to perform sustainable lifestyle and purchase (Table 5), the study suggested the tools to overcome barriers into four different component of policy's point of interventions; i. Product Innovation, ii. Technical Innovation, iii. Governance Approaches and iv. Knowledge, Awareness & Advocacy (Figure 1). In detail, product innovation performs by provide more choices for green products in cheaper price and the policies intervention can be in a form of creation of economic instrument such as subsidy for environmentally products to encourage more. Technical Innovation involves various policies during product manufacturing by developing policies to prohibit environmentally harmful technologies (products and processes) or demanding environmentally friendly technologies as part of permitting to reduces emissions/ resource use that lead to downstream pollution by provide assessment taken to evaluate the effectiveness of government campaign and other green market issues related. The governance approaches can be through various policies instrument such as command and control/ regulator approach for mandatory sources separation, mandatory for governments eco-labelling products, subsidy for local organic products and etc. The policies suggested are based on the list of barriers stated in (Table 4).

The last, knowledge, awareness & advocacy cover various policies to educate consumers and producers for voluntary choose environmentally sound products and processes, such as nationwide recycling campaign conducted in 1999 and 2010, no plastic bag campaign in 2009, saving energy product campaign and etc. Knowledge, awareness and advocacy provide platform for collaborations. For example, the involvement of major hypermarket and supermarkets as part of the corporate social responsibility in sustainable lifestyle and purchase campaign such as No Plastic Bag Campaign (Richards and Zen 2016), helping to strengthen the middle-class group involvement while conducive environment for behavioral changes is crucial. Despite the various effort in promote the sustainable consumption and lifestyle, there are still policy lacking and incompatibility in support a whole range of sustainable consumption and production especially for post- consumer used (Zen and Siwar 2015). The latest, Malaysia sustainable consumption reports include the production in order to cover comprehensively (Adham and Siwar 2012).

The key role of household consumer behavior in driving environmental impact has long been recognized. Norwegian government start a roundtable on sustainable consumption in 1994 by involving business, non-governmental organization (NGO) and government representatives (Ofstad, 1994). A creative policy innovation applied to encourage consumer behavioral changes by introduce economics incentive structures and institutional rules in support of sustainable behaviour. Policy innovation should enable consumer to access a pro-environmental

choice such as greener product available in the market with reasonable prices to attract the consumers from low income group.

VII. CONCLUSION

The study covers wide range of practices of household's sustainable lifestyle and consumption which further structure into two important components; sustainable purchase and sustainable behaviour. Given the rationalities and economic reasons as underlying motivation of both components, more educational awareness coupled with policy intervention is needed. Given the contextual factor, sustainable purchase function as mediator to accelerate behavioural changes in society, it's also concerning points for policies interventions through product innovation, technical innovation, governance approaches and knowledge, awareness and advocacy

REFERENCES

[1]   Adham, Khairul Naim, and Chamhuri Siwar. 2012. "Empirical Investigation of Government Green Procurement (GGP) Practices In Malaysia." *International Journal of Sustainable Development* 4(4): 77–88.

[2]   Ajzen, Icek. 2011. "The Theory of Planned Behaviour: Reactions and Reflections." *Psychology & Health* 26(9): 1113–27.

[3]   Al-Swidi, Abdullah, Sheikh Mohammed Rafiul Huque, Muhammad Haroon Hafeez, and Mohd Noor Mohd Shariff. 2014. "The Role of Subjective Norms in Theory of Planned Behavior in the Context of Organic Food Consumption." *British Food Journal* 116(10): 1561–80.

[4]   Al-Qaradawi, Yusuf (1994). The Lawful and Prohibited in Islam (Al-Halal Wal Haram Fil Islam). *Plainfield: American Trust Publication.*

[5]   Banbury, Catherine, Robert Stinerock, and Saroja Subrahmanyan. 2012. "Sustainable Consumption: Introspecting across Multiple Lived Cultures." *Journal of Business Research* 65(4): 497–503.

[6]   Barr, Stewart, and Andrew Gilg. 2006. "Sustainable Lifestyles: Framing Environmental Action in and around the Home." *Geoforum* 37(6): 906–20.

[7]   Bauman, Zygmunt. 1992. "Survival as a Social Construct." *Theory, Culture & Society* 9: 1–36.

[8]   Biel, A. 2000. Factors promoting cooperation in the laboratory in common pool resource dilemmas and n large scale dilemmas: similarities and differences. In : M. Van Vugt, M. Snyder, T.R. Tyler & A. Biel (Eds.). Cooperation n modern society: Promoting the welfare of communities, states and organizations, pp. 25-41. London: Routledge.

[9]   Bilal, Muhammad Asim (2001). Kīmiyā-i-Saʿādat – An English Translation of Imam Ghazzali's Alchemy of Eternal Bliss (Abu Hamid Al-Ghazzali). KAZI PUBLICATIONS, Lahore-Pakistan.

[10]   Burgess, Jacquelin et al. 2003. "(Un)sustainable Consumption." In Egotiating Environmental Change: New Perspectives from Social Science, eds. Melissa Leach and Ian Scoones. *Edward Elgar Publishing,* 261.

[11]   Chaney, David C. 1996. Lifestyles. *Routledge.*

[12]   Daugbjerg, Carsten., Sinne Smed, Laura Mørch Andersen & Yonatan Schvartzman (2014) Improving Eco-labelling as an Environmental Policy Instrument: Knowledge, Trust and Organic Consumption, *Journal of Environmental Policy & Planning,* 16:4, 559-575.

[13]   Di Gregorio, M., Nurrochmat, D.R., Paavola, J., Sari, I.M., Fatorelli, L., Pramova, E., Locatelli, B., Brockhaus, M. and Kusumadewi, S.D. (2017). 'Climate policy integration in the land use sector: Mitigation, adaptation and sustainable development linkages'. *Environmental Science & Policy* 67, 35-43.

[14]   Dolan, Paddy. 2002. "The Sustainability of 'Sustainable Consumption", *Journal of Macro marketing* 22(2): 170–81.

[15]   Featherstone, Mike. 1987. Lifestyle and Consumer Culture. *Theory, Culture & Society* 4(1): 55–70.

[16]   Frey, Bruno S., and Klaus Foppa. 1986. "Human Behavior: Possibilities Explain Action." *Journal of Economic Psychology* 7(2): 137–60.

[17]   Gardner, Gerald T, and Paul C Stern. 1996. Environmental Problems and Human Behavior. *Needham Heights.*

[18]   Giddens, Anthony. 1991. Modernity and Self-Identity: Self and Society in the Late Modern Age. *Stanford University Press.*

[19]   Gilg, Andrew, Stewart Barr, and Nicholas Ford. 2005. "Green Consumption or Sustainable Lifestyles? Identifying the Sustainable Consumer." *Futures* 37(6): 481–504.

[20]   Jackson, Tim. 2008. "Live Better by Consuming Less?: Is There a 'Double Dividend' in Sustainable Consumption?" *Journal of Industrial Ecology* 9(1-2): 19–36.

[21]   Jackson, Tim, and Laurie Michaelis. 2003. Policies for Sustainable Consumption A Report to the Sustainable Development Commission Policies for Sustainable Consumption.

[22]   Lafferty, William, and Eivind Hovden. 2003. "Environmental Policy Integration: Towards an Analytical Framework." Environmental Politics 12(3): 1–22.

[23]   Lee, Sean Henry. 2005. "An Application of a Five-Stage Consumer Behaviour Decision Making Model: An Exploratory Study of Chinese Purchasing of Imported Health Food."

[24]   Kast., S.W. & Tanner, W. 2003. Promoting Sustainable Consumption: Determinants of Green Purchases by Swiss Consumers. *Psychology and Marketing* 20(10):883 – 902.

[25]   Mainieri, Tina et al. 1997. "Green Buying: The Influence of Environmental Concern on Consumer Behavior." *The Journal of Social Psychology* 137(2): 189–204.

[26]   Ministry of Domestic Affairs, Co-operatives and Consumerisms. 2003. *Malaysia Consumer Master Plan. Malaysia.*

[27]   Ministry of Green Technology, Energy and Water. 2014. National Renewable Energy Policy and Action Plan.

[28]   Marchand, Anne, and Stuart Walker. 2008. "Product Development and Responsible Consumption: Designing Alternatives for Sustainable Lifestyles." *Journal of Cleaner Production* 16(11): 1163–69.

[29]   McKenzie-Mohr, Doug. 2000. "New Ways to Promote Proenvironmental Behavior: Promoting Sustainable Behavior: An Introduction to Community-Based Social Marketing." *Journal of Social Issues* 56(3): 543–54.

[30]   Meadowcroft, James. 2002. "Politics and Scale: Some Implications for Environmental Governance." *Landscape and Urban Planning* 61(2-4): 169–79.

[31]   Miller, Daniel. 1995. "Consumption and Commodities." Annual Review of Anthropology 24(1): 141–61.

[32]   Musa, Abeer, Habib Ullah Khan, and Khaled A. AlShare. 2015. "Factors Influence Consumers' Adoption of Mobile Payment Devices in Qatar." *International Journal of Mobile Communications* 13(6): 670.

[33]   Myers, Norman., and Jennifer Kent. 2004. The New Consumers : The Influence of Affluence on the Environment. *Island Press.*

[34]   National Collaborating Centre for Healthy Public Policy. 2012. A Fraework for Analyzing Public Polices: Practical Guide.

[35]   Ofstad, Sylvi., Liv. Westly, Tone. Bratelli, and Norway. Miljøverndepartementet. 1994. "Symposium: Sustainable Consumption." *In Symposium on Sustainable Consumption, Oslo, Norway: Ministry of Environment,* 180.

[36]   Ramli, Awang et al. 2014. "Halal Epistemology from a Global Perspective." *The Social Science* 9(6): 375–78.

[37]   Richards, Cameron, and Irina Safitri Zen. 2016. "From Surface to Deep Corporate Social Responsibility." *Journal of Global Responsibility* 7(2): 275–87.

[38]   Repetto, Robert. 2006. "Introduction." In Punctuated Equilibrium and the Dynamics of U.S. Environmental Policy, ed. R. Repetto. *New Haven: Yale University Press,* 1–23.

[39]   Saari., U.A., Baumgartner, R.J. & Mäkinen., S.J. 2017. Eco-Friendly Brands to Drive Sustainable Development: Replication and Extension of the Brand Experience Scale in a Cross-National Context. *Sustainability* 9(1286).

[40]   Sadalla, Edward K., and Jennifer L. Krull. 1995. "Self-Presentational Barriers to Resource Conservation." *Environment and Behavior* 27(3): 328–53.

[41]   Stern, David I. 1997. "Limits to Substitution and Irreversibility in Production and Consumption: A Neoclassical Interpretation of Ecological Economics." *Ecological Economics* 21(3): 197–215.

[42]   Tanner, Carmen, and Sybille Wölfing Kast. 2003. "Promoting Sustainable Consumption: Determinants of Green Purchases by Swiss Consumers." *Psychology & Marketing* 20(10): 883–902.

[43]   Tey, Yeong Sheng et al. 2008. "A Complete Demand System of Food in Malaysia." *Journal of Agricultural Economics* 5(3): 17–29.

[44]   Thøgersen, John. 2005. "How May Consumer Policy Empower Consumers for Sustainable Lifestyles?" *Journal of Consumer Policy* 28(2): 143–77.

[45]   Unal Ali (2008). The Qur'an. Annotated Interpretation in Modern English. 2008. *New Jersey: The Light, Inc.*

[46]   Khadiv-Jam, Hussin (2014). Kīmiyā-i-Saʿādat (Alchemy of Eternal Bliss) – A Persian Translation of Abu Hamid Imam Muhammad Ghazzali Tusi. *Tehran: Intesharat-e ʿIlmi va Farhangi.*

[47]   Vringer, Kees, and Kornelis Blok. 2000. "Long-Term Trends in Direct and Indirect Household Energy Intensities: A Factor in Dematerialisation?" *Energy Policy* 28(10): 713–27.

[48]   Whitmarsh, L. (2009). Behavioural responses to climate change: Asymmetry of intentions and impacts. *Journal of environmental psychology,* 29(1), 13-23.

[49]   Yanow, Dvora, and Peregrine Schwartz-Shea. 2015. Interpretation and Method: Empirical Research Methods and the Interpretive Turn - - Google Books. *Routledge.*

[50]   Young, W., Hwang, K., Mcdonald, S. and Oates, C. J., 2010. Sustainable consumption: green consumer behaviour when purchasing products. *Sustainable Development*, 18 (1), pp. 20-31.

[51]   Zen, Irina Safitri, Ahamad, Rahmalan. & Omar, Wahid. 2013a. No Plastic Bag Campaign Day in Malaysia and the Policy Implication. *Environment, Development & Sustainability: 1-11.   Springer*

[52]   Zen, Irina Safitri, Ahamad, Rahmalan. Rampal, Krihsna Gopal & Omar, Wahid. 2013b. Asbestos in Malaysia: Legislative Measures, the Current Status and Recommendations for a Ban on Use. *International Journal of Occupational and Environmental Health.* 19 (3): 169-178.

[53]   Zen, Irina Safitri, Noor, Zainura Zainon & Rafiu Olasunkanmi Yusuf. 2014. The Profile of Household Recycler and Non Recycler in Kuala Lumpur, Malaysia. *Habitat International* 42:83-89.

[54]   Zen, Irina Safitri, and Chamhuri Siwar. 2015. "An Analysis of Household Acceptance of Curbside Recycling Scheme in Kuala Lumpur, Malaysia." *Habitat International* 47: 248–55.

Framing the Household Sustainable Consumption and Lifestyle in Malaysia: The Policy Implications

Exclude bibliography   On