

# Islam, Eco-literacy and Green Purchase: Evidence from Malaysia

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## Abstract

This paper discusses the role of green purchase behaviour based on Islamic teachings and examines the influence of eco-literacy on willingness to purchase green products empirically among Muslim consumers in Malaysia. A survey was conducted using self-structured questionnaires on Muslim respondents of above 18 years age, working, and having green purchasing experience, selected at several major electrical outlets within central region of Malaysia. The study relates Islamic teachings with importance of green purchase behaviour, highlighting the significance of knowledge in practice/behaviour based on Islamic view, and providing an empirical investigation on eco-literacy concept in determining willingness to purchase energy-efficient home electrical products among Muslim consumers in Malaysia. The results and the findings implied that awareness of environmental problems and product characteristics had a significant positive influence on willingness to purchase energy-efficient products while awareness of eco-label did not significantly influence willingness to purchase energy-efficient products among Malaysian Muslim consumers. The study calls for improving the understanding on the importance of green purchase behaviour in protecting the environment and the significance of eco-literacy in guiding pro-environmental behaviours based on Islamic teachings. It also provides insights to policy-makers and industry players in planning interventions and promotional campaigns of green products by improving the awareness of environmental. Further research is required on effectiveness of energy-efficient eco-label as a communication tool in promoting energy-efficient home electrical products among Muslim consumers.

**Keywords:** Consumer Behaviour, Eco-Literacy, Environment, Ozone Layer Depletion, Green Products, Islam, Purchase.

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## 1. Introduction

Recent climate change phenomenon and other prevailing environmental problems have marked a need for human beings to rethink their way of consumption particularly in their relationship with the environment. Due to greater development achieved in Malaysia, economic prosperity is enjoyed by consuming more products (Haron, Paim & Yahaya, 2005). However, excessive and wasteful consumptions are detrimental to the environment. Such unsustainable way of consumption has resulted in various environmental problems in the country with adverse impacts on human well-being such as global warming. Since consumption is inevitable for human being to survive, green product is viewed as a means to reduce the impacts of human consumption on the environment. The emergence of green products in the marketplace has provided a better way of consumption by reducing adverse environmental impacts of products consumed.

In Islam, the environment is regarded as a gift from Allah (swt) to humans. The environment was bestowed upon us to ensure our well-being which in turn facilitates the performing of *'ibādah* (act of worship). It is, therefore, important to preserve it in every way. Muslims are promoted to practice pro-environmental behaviour. By purchasing and consuming green products, Muslims can contribute towards environmental improvement and perform *'ibādah* at the same time. However, little attention has been paid in research studies so far to link green products purchase behaviour with Islamic teachings.

In Malaysia, Muslims represent 61.3% of the country's population which is the largest group as compared to other religious groups (Department of Statistics, Malaysia, 2010). As a country with a significant percentage of Muslim population, Islamic teachings should be faithfully observed and practiced including, *inter alia*, maintaining a harmonious relationship with the environment. Looking into past studies, green products have been increasingly accepted by Malaysians since most respondents reported moderate to high level of green product purchases (Mat Said, A., Ahmadun, F., Paim, L., and Masud, J., 2003; Sabri & Teoh, 2006). Nevertheless, little has been understood on green purchase behaviour among Muslims in Malaysia.

The importance of knowledge in performing any behaviour is emphasized in Islam. Environmental knowledge or eco-literacy was deemed important as a factor influencing pro-environmental intention and behaviour (Martin & Simintiras, 1995; Hawthorne & Alabaster, 1999).

However, insufficient understandings and inconsistent influences on eco-literacy within the context of green purchase had triggered further research particularly among Muslims. Therefore, the aim of the paper is: i) to discuss the role of green purchase behaviour based on Islamic teachings; and ii) to empirically examine the influence of eco-literacy on willingness to purchase green products among Muslim consumers in Malaysia.

## 2. Islam and Environmental Protection

In order to understand the need for protecting the environment from unsustainable activities as stressed in Islam, it is important to highlight some verses of Al-Qur'ān and narrations by Prophet Muhammad (pbuh). For example, Allah has provided us the environment and its components for our well-being and sustenance on earth in order to carry out our responsibility and performing *'ibādah* to Allah. In Al-Qur'ān, Allah says:

*“Have those who disbelieved not considered that the heavens and the earth were a joined entity, and We separated them and made from water every living thing? Then will they not believe?”*

Surah Al-Anbiyā' (21: 30)

*“And We made the sky a protected ceiling, but they, from its signs, are turning away”. Surah Al-Anbiyā' (21:32)*

In addition, Allah has reminded us not to perform destructive activities including causing degradation to the environment. In Al-Qur'ān, Allah mentions:

*“And do not cause corruption in the earth, when it has been set in order” Surah Al-'Arāf (7:56).*

Yet, presently, the environment has suffered severe degradation due to mismanagement and excessive exploitation by human beings. For example, pollution and climate change have caused the downgrading of human well-being and quality of life, through poverty due to destroyed crops in rural areas and diseases due to low environmental quality among city dwellers. Ibn Khaldun, a medieval-Islamic scholar, had also mentioned in his work of *Muqaddimah* or *Prolegomena* on environmental degradation as well as the falling quality of human lives due to economic growth which is no longer sustainable (cf: al-Attas, 2008). Besides, Rostow (1960), in his *Theory of Economic Development*, highlighted the same process and consequences in achieving economic growth. Again, in the current era, human beings have forgotten or even ignored Allah's warnings on such phenomenon as mentioned in Al-Qur'ān :

*“Corruption has appeared throughout the land and the sea by [reason of] what the hands of people have earned so He may let them taste a part of [the consequence of] what they have done that perhaps they will return [to righteousness]”.*

Surah Ar-Rūm (30: 41)

Islam is very straight forward in guiding human's life so that sustainability can be preserved and degradation is avoided. Failure to adhere to Islam's teachings has resulted in various catastrophes which prevail today including environmental degradation. Therefore, as human beings, we are obligated to care for the environment bestowed upon us by Allah and should not simply be driven only by monetary returns in managing the environment. Further, Prophet Muhammad (pbuh) has also mentioned: *“There is a reward in doing good to every living thing”*<sup>2</sup> Hence, it is important to observe Islamic teachings in protecting the environment so that one can be more alert of his or her responsibility in maintaining balance and the sustainability of the planet including purchasing products which are friendlier to the environment, as mentioned in Al-Qur'ān:

*“And spend in the way of Allah and do not throw (yourselves) with your (own) hands into destructions (by refraining). And do good: indeed Allah loves the doers of good”* (Surah Al-Baqarah: 2:195)

### 3. Willingness to Purchase Green Products

Green or environmentally-friendly purchase behaviour is the individual's purchasing habit of environmentally-friendly products (Schlegelmilch, Bohlen, & Diamantopoulos, 1996, p.40), or products that will not pollute the earth or deplete natural resources, and can be recycled or conserved (Shamdasani, P., Chon-Lin, G., and Richmond, D., 1993, p.488). The act of acquiring green products is important, the right buying decision can reduce or even totally eliminate the risk of environmental harm in the post-purchase stages of consumption cycle (Stern, P. C., Dietz, T., Ruttan, V.W., Socolow, R.H., and Sweeney, J.L., 1997) and able to cause significant impact onto environment if it is done in aggregate (Stern, 2000). However, the concept of green products must also be lawful or *ḥalāl* in Islam since there are similarities between being environmentally-

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<sup>2</sup> Hadith narrated by Abu Hurayra in "Mālik's Muwatta. Version 1.03. Book 49, Number 49.10.23. Ṣaḥīḥ Muslim (5777) and Ṣaḥīḥ al-Bukhari (Vol. 3, no.551 and no.646); [http://www.mountainoflight.com/spiritual\\_hadith\\_p2.html](http://www.mountainoflight.com/spiritual_hadith_p2.html)

friendly and considered as lawful in Islam (Razalli, Abdullah & Yusoff, 2012). For example, although organic wine (or any other alcoholic drinks) can be considered as a green product, Islam had forbidden it due to bad impacts imposed by such products on its users [Al-Qur'an, Surah Al-Maidah: 5: 90-91)].

From the year 2004, the number of green products has been increasing and until May 2012, it is reported that there are 1508 green products currently available in Asian markets (Asian Productivity Organization, 2012), with energy-saving products constituting almost forty percent of total green products available. The trend is expected to increase in the future due to expected demand from people in Asia, including Malaysia. A study done by Mat Said *et al.* (2003) found that 18.2% of selected teachers from ten schools in Selangor reported high level of environmentally-conscious consumer behaviour, while the remainder (81.8%) of the respondents reported moderate levels of environmentally-conscious consumer behaviour. The study also reported that among the most frequently engaged behaviour include the usage of unleaded petrol to reduce pollution and not purchasing products which are harmful to the environment although they were cheaper.

Another study done by Ahmad and Juhdi (2008) reported that 48.6% of 177 consumers intercepted in supermarkets in Klang Valley reported that they had purchased green products in their lifetime. In another study, Sabri and Teoh (2006) found that 21.3% respondents among 80 employees in a private company in Selangor reported high level of green product purchase behaviour, while 71.3% reported moderate level. Studies had also been done on university students whereby Tan and Lau (2009) reported moderate levels of sustainable consumption among students at a private university, while Md Harizan (2006) also reported moderate level in the events of green product purchases among students in a public university. Overall, the behaviour of purchasing green products among Malaysians has been moderate.

Even though only moderate levels of green products actual purchase were reported, it was also reported that there has been significant interests towards acquiring green products among Malaysians. A study by Abdul Qader (2008) on 170 lecturers in a public university reported that lecturers' intention to purchase electronic green products was positively driven by extensive media exposure which disseminates environmental issues including green products. Another study by Alodini (2008) found that willingness to pay more for green products among public university students was moderate whereby students are positively influenced by

attitudes and past pro-environmental behaviour. While a study by Nik Abdul Rashid (2007) on 526 employees from forty-six ISO 14000 certified organisations found that respondents reported moderate to high intention to purchase energy-efficient bulbs as compared to incandescent bulbs. Since pre-purchase consideration is a good indicator of actual purchase behaviour due to the high correlation between pre-purchase considerations and general purchase behaviour (Yam-Tang and Chan, 1998), willingness to purchase green products was examined as a proximal antecedent to purchase behaviour.

#### 4. Eco-literacy

Knowledge is important in guiding human life. Allah (swt) has mentioned the essence of knowledge in Al-Qur'ān:

*And these examples We present to the people, but none will understand them except those of knowledge [Al-'Ankabūt: 29:43].*

The significance of knowledge had been also mentioned by Prophet Muhammad (pbuh):

*"Acquire Knowledge, it enables its possessor to distinguish right from wrong; it lights the way to heaven. It is our friend in the desert, our company in solitude and companion when friendless. It guides us to happiness, it sustains us in misery, it is an ornament amongst friends and armour against enemies. "Who are the learned? Those who practiced what they know".<sup>3</sup>*

Knowledge or ability to learn and to store information also plays an important role in all phases of decision-making (Laroche, Bergeron, & Forleo, 2001) including decisions to engage in pro-environmental behaviour (Martin & Simintiras, 1995; Hawthorne & Alabaster, 1999) and particularly in determining green purchase behaviour (Hawthorne & Alabaster, 1999; Chan & Lau, 2000). In environmental behavioural studies, environmental knowledge or eco-literacy can be defined as the "ability to identify or define environmentally-related concepts, symbols, and behaviours among individuals" (Laroche *et al.*, 2001, p. 505) which is deemed as an important pre-requisite for one to behave properly towards the environment. From the review done on the concept of eco-literacy, consumer's knowledge or awareness on environmental problems or issues such as acid rain, ozone layer depletion, and destruction of rain forests is

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<sup>3</sup> Hadith widely known and available online Please see the website: <http://islamicbooks.info/H-7-Ethics/7--Ethics-4.htm>



vital in determining green behaviour among green consumers (Diamantopoulus, *et al.*, 2003; Young, *et al.*, 2009). The influence of awareness on environmental problems was found to be significant on green purchase behaviour (Thøgersen, 1999; Nordlund & Garvill, 2003). However, there are also studies which found that awareness on environmental problems had no significant effects on green purchase behaviour (Mat Said *et al.*, 2003; Ibrahim, 2004) which may require further investigation.

Apart from awareness on environmental issues or problems, Thøgersen, Haugaard, and Olesen (2010) have suggested that future studies should also incorporate product-related knowledge such as awareness on a product's characteristics and eco-label in understanding the concept of eco-literacy within consumer green purchasing context. Environmentally-friendly characteristics of a product are defined based on its environmentally-friendliness or green attributes along its life-cycle (Wang, 2007) such as recyclability, degradability, and energy-efficiency. Interviews done by Young *et al.*, (2009) on eighty-one self-declared green consumers found that having knowledge on specific environmentally-friendly product's characteristics such as energy efficiency and energy ratings are essential in order to be 'green' and purchase green technology products. Apart from the study, Klockner and Ohms (2006) found that specific knowledge of green products' characteristics such as recyclability had a significant influence on green product choice among respondents. Besides awareness on green products' characteristics, the awareness on eco-label, or "a label which identifies overall, proven environmental preference of a product or service within a specific product/service category" (Global Ecolabelling Network, 2013) is also important in distinguishing green products from their counterparts (Thøgersen, 2000).

Eco-labels are also known as the ISO 14020 series by the International Organization for Standards (ISO, 2004). Among eco-labels which are universally recognised are: *Energy Star* for energy-efficient products and 'mobius-loop' label for recyclable items. Past literatures showed that the knowledge on eco-label had imposed a significant positive influence on green product purchase (Thøgersen, 2000; Tanner & Kast, 2003). However, there were also studies which found that eco-label did not impose any significant results on green purchase (Sammer & Wustenhagen, 2006, D'Souza, C., Mehdi Taghian, and Lamb, P., 2006a). Nevertheless, it can be argued that when people having none or limited knowledge of eco-labels, he or she shall lose an important cue which indicates that a particular product is green and thus, inhibits him or her

from distinguishing green products from conventional products which subsequently refrain him or her from purchasing green products.

Realising that it is important for consumers to have the necessary knowledge on general environmental problems or issues, product environmental attributes and eco-labels, prior to purchasing green products, the study attempts to conceptualise eco-literacy based on the notion of awareness on environmental problems, awareness on product characteristics, and awareness on eco-label. It is then hypothesized that:

**H<sub>1</sub>:** Awareness on environmental problems has a significant positive influence on willingness to purchase green products.

**H<sub>2</sub>:** Awareness on product characteristics has a significant positive influence on willingness to purchase green products.

**H<sub>3</sub>:** Awareness on eco-label has a significant positive influence on willingness to purchase green products.

## 5. Methodology

Apart from understanding green purchase as a way to protect the environment as outlined in Islam, the present study also attempts to causally investigate the influence of eco-literacy on willingness to purchase green products. The unit of analysis involves working individual Muslim consumers who are 18 years old and above, and have green purchase experience. Green products chosen were energy-efficient home electrical appliances since the conventional home electrical appliances consume a significant amount of electricity in the residential sector (Mohd. Taha, 2003; Tang, 2005) which is detrimental to the environment through the emissions of greenhouse gases in the process of generating the electricity. Data were elicited at several randomly selected major electrical outlets within the central region of Malaysia using self-administered questionnaires.

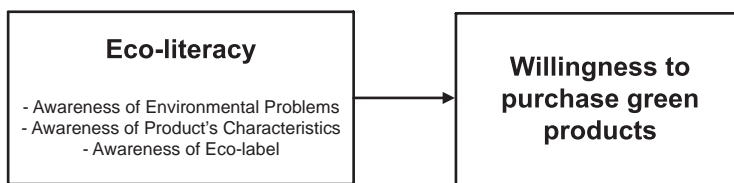
Measurement scales used in the study were adapted from past studies. Eco-literacy construct was formed of eighteen items, which consist of five items on awareness on environmental problems adapted from the study of Diamantopoulus *et al.*, (2003), five items on awareness on product characteristics adapted from the study of Young *et al.*, (2009), and eight items on awareness on eco-label, with four items adapted from each study of D'Souza *et al.*, (2006b), and Tanner and Kast (2003). The alpha coefficient for measurement scales from each respective study was 0.94, 0.89, 0.89, and 0.80. Energy rating eco-labels issued by GreenTech Malaysia (formerly known as Malaysia Energy Commission) were



employed in measuring the extent of eco-label awareness among individuals. Six items measuring willingness to purchase green products were adapted from the study of Roberts (1996) with an alpha coefficient of 0.96. All items were measured at 5-points Likert scale. (1= “Strongly disagree” to 5= “Strongly agree”). Prior to the actual study, measurement items were validated by several academicians and industry experts before undergoing a pilot study carried out in a major electrical outlet in Kuala Lumpur.

**Figure 1.**

### **Conceptual Model**



## **6. Results and Findings**

From the total of 300 questionnaires distributed, 275 were returned, which represented 91.6% response rate. Out of the number, 252 usable questionnaires were finally acquired which formed 84.0% usable rate. In terms of age, the largest age group was from 18 to 35 years old (54.8%) followed by those from 36 to 50 years old (28.2%), 51 to 65 years old (14.3%), and over 65 years old (2.8%).

Male respondents (54.0%) exceeded female (46.0%). Married (59.5%) respondents outnumbered single (39.3%) and separated (1.2%) respondents while the majority of respondents having no children (45.2%) including both married and single, followed by three or more children (29.8%), single child (12.7%), and respondents with two children (12.3%).

In terms of personal monthly income, the largest group of respondents having income between RM1001.00 to RM2000.00 (32.9%), followed by those having between RM2001.00 to RM3000.00 (28.6%), below RM1000.00 (20.2%), between RM3001.00 to RM4000.00 (9.5%), between RM4001.00 to RM5000.00 (4.8%) and above RM5001.00 (4.0%). Most of the respondents worked in low level management (48.0%), followed by middle level management (44.4%), and top level management (7.6%).

The majority of respondents had attained SPM level of education (47.6%), followed by diploma (17.9%), bachelor's degree (11.5%), STPM (9.1%), others (6.7%), certificate level (6.3%), and master's degree

(0.8%). Most of respondents did not participate in any environmental group or associations (95.2%) as compared to those who did (4.8%).

Based on the results of exploratory factor analysis, measurement scales for all variables studied met the criteria of construct validity through both convergent and discriminant validity (Hair, et al., 2006). For eco-literacy, KMO measure of sampling adequacy was 0.913 indicating sufficient inter-correlations while the Bartlett's Test of Sphericity was significant (Chi-square =2686.34,  $p<0.01$ ). All eighteen items were loaded into three components of eco-literacy respectively. For willingness to purchase green products, one item, ("Home electrical appliances which are quite expensive but saved electricity") has been removed due to low loading and communalities (less than 0.5). KMO measure of sampling adequacy was 0.867 indicating sufficient intercorrelations while the Bartlett's Test of Sphericity was significant (Chi-square =679.67,  $p<0.01$ ). All five remaining items were loaded into a single component.

Results of reliability analysis show that the Cronbach alpha coefficient value of awareness on environmental problems was 0.83, awareness on product characteristics was 0.86, awareness on eco-label was 0.93, and willingness to purchase green products was 0.88, indicating a good internal consistency reliability of validated measurement scales (Sekaran, 2003). In terms of descriptive analysis, the mean score for awareness on environmental problems was 4.02, awareness on product characteristics was 3.61, and awareness on eco-label was 3.55 with a standard deviation of 0.65, 0.69, and 0.80 respectively. Mean scores for willingness to purchase green products was 4.10 with a standard deviation of 0.716.

	1	2	3	4
1. Awareness on environmental problems	-			
2. Awareness on product's characteristics	.528***	-		
3. Awareness on eco-label	.458***	.482***	-	
4. Willingness to purchase green products	.541***	.397***	.349***	-

\* $p<0.10$ , \*\* $p<0.05$ , \*\*\* $p<0.01$

**Table 1.**

Correlation matrix of variables

A Pearson correlation coefficient analysis was performed on all the variables studied in order to examine the inter-correlations between variables. The results of the correlation analysis as shown in the correlation matrix in Table 1 indicated that all components of eco-literacy were significantly and positively correlated with willingness to purchase green products.

Variables	Standardised Beta
Awareness on Environmental Problems	0.44***
Awareness on Product Characteristics	0.12*
Awareness on Eco-label	0.09
R <sup>2</sup>	0.32
Adjusted R <sup>2</sup>	0.31
F value	38.15**
Durbin-Watson	1.565

\*p<0.10, \*\*p<0.05, \*\*\*p<0.01

Notes:

Dependent variable: Willingness to purchase green products

## Table 2.

Regression analysis (willingness to purchase green products on eco-literacy)

Willingness to purchase green products was regressed on each eco-literacy components. From the table above, R<sup>2</sup> value was 0.32, meaning that 32.0% variation in the dependent variable, i.e. willingness to purchase green products is explained by awareness on environmental problems, awareness on product characteristics, and awareness on eco-label and the model was significant (F=38.15, p<0.01). Evaluation of regression analysis was based on criteria specified by Hair, *et al.*, (2006) and the model is fit. Based on the findings, Hypothesis 1 and Hypothesis 2 were supported while Hypothesis 3 was not supported because the relationship between awareness on eco-label and willingness to purchase green products was not significant.

## 7. Conclusion

From the findings, awareness on environmental problems and product characteristics were found to be essential predictors of willingness to purchase green products among Muslim respondents. The study had provided further evidence of linkages between eco-literacy and green purchase behaviour among Muslims in Malaysia. In understanding the operationality of eco-literacy within green purchase context, results from factor analysis have suggested that awareness on environmental problems, green product characteristics and eco-label are crucial elements of eco-literacy which had further expanded the earlier study by Thøgersen *et al.*, (2010), in which product-related knowledge was suggested to be operative as part of knowledge or literacy aspects required in selecting green products.

Results from the study have further supported that awareness on environmental problems is an important determinant which significantly influences individual in purchasing green products as found by earlier studies by Thøgersen (1999), Diamantopoulus *et al.*, (2003), and Nordlund and Garvill (2003). In addition, the present study had extended the notion of environmental problems by analysing the awareness on linkages between the resulting environmental problems with one's product choice. Furthermore, the findings also supported that knowing about product attributes is among the important considerations in choosing green products as found in the earlier studies by Klockner and Ohms (2009) and Young *et al.*, (2009). Consumers who were aware of products' green attributes were able to identify and choose products which are friendly towards the environment whereby in this study, awareness on energy-efficiency characteristics had significantly influenced willingness to purchase environmentally-friendly products of energy-efficient home electrical appliances. However, eco-labels seemed to be less effective in communicating a product environmental-friendliness among Muslim consumers in making purchase decisions which had supported earlier studies by Sammer and Wustenhagen (2006) and D'Souza *et al.*, (2006a). In other words, green justification on labels particularly energy-efficient labels did not significantly affect willingness to purchase energy-efficient home electrical appliances among Muslims in Malaysia.

The present study has contributed to policy-makers and businesses in planning interventions and promotional campaigns for green products by strengthening the awareness on consumer's product choice in relation to environmental problems which resulted from the products. Sufficient

information on green product attributes such as energy-efficiency in the study should also be made widely available to consumers so that they will be better facilitated with proper knowledge in choosing green products over conventional products in the marketplace.

Several limitations were noted whereby the present study is cross-sectional in nature and may not provide a solid conclusion. Also, the results may not be generalised to other groups outside the scope of the study. Moreover, the study may have also been subjected to geographical limitations since only the central region of Malaysia was focused on, leaving other regions in Malaysia to be future avenues which can be focused on. Since awareness on eco-label did not indicate significant influence on willingness to purchase environmentally-friendly products, future researchers may further investigate the effectiveness of eco-labels in communicating the environmentally-friendliness of products, particularly on the extent of recognition and understanding of other eco-labels than the one which was employed in the present study. Further studies which link between the understanding of eco-labels and *halāl* logo can also be considered. Future studies may also embark on other psychological determinants of willingness to purchase environmentally-friendly products which are pertinent to Muslims' life including the extent of spirituality or religiosity, and morality based on Qur'ān and Sunnah.

To conclude, since consumption is inevitable for human well-being, green products may be able to provide a better way in consumption by reducing products' negative impacts on the environment. As environmental protection is strongly emphasized in Islam, green purchase behaviour can be also viewed as an *'ibādah*. Therefore, Muslims should purchase and consume green products in their daily lives. Moreover, the significance of knowledge in determining proper behaviour according to Islam was also reflected in the empirical manner whereby eco-literacy (in terms of awareness on related environmental issues and green products' characteristics) was deemed as the pre-requisite for green purchase among Muslims consumers in Malaysia.

## Bibliography and References

1. Abdul Qader, I.K., (2008), Intention to Purchase Electronic Green Products Amongst Lecturers: An Empirical Evidence, Masters thesis, Universiti Sains Malaysia.
2. Ahmad, S.N.B. and Juhdi, N., (2008), "Consumer Perception and Purchase Intentions Toward Organic Food Products: Exploring the Attitude Among Malaysian Consumers", available at [http://www.pbfeam2008.bus.qut.edu.au/papers/documents/SitiNorBayaahAhmad\\_Final.pdf](http://www.pbfeam2008.bus.qut.edu.au/papers/documents/SitiNorBayaahAhmad_Final.pdf) (accessed 21 August 2009).
3. Al-Attas, S.A.S.O., (2008), *The Muqaddimah of Ibn Khaldun: Religion, Human Nature and Economics*, Selangor International Islamic University College, Kajang.
4. Alodini, A.A., (2008), "Factors That Influence Customers To Pay More For Environmental Friendly Products. Going Green in USM", MBA thesis, Universiti Sains Malaysia.
5. Asian Productivity Organization, (2012), "Eco-Products Directory 2012", available at [http://www.apo-tokyo.org/publications/files/Eco-products\\_Directory\\_2012\\_web.pdf](http://www.apo-tokyo.org/publications/files/Eco-products_Directory_2012_web.pdf) (accessed 28 May 2012).
6. Chan, R. Y. K. and Lau, B.Y., (2000), "Antecedents of green purchase: a survey in China", *Journal of Consumer Marketing*, Vol. 17 No. 4, pp. 338-357.
7. Department of Statistics, Malaysia, (2010), "Population Distribution and Basic Demographic Characteristics 2010", available at [http://www.statistics.gov.my/portal/download\\_Population/files/census2010/Taburan\\_Penduduk\\_dan\\_Ciri-ciri\\_Asas\\_Demografi.pdf](http://www.statistics.gov.my/portal/download_Population/files/census2010/Taburan_Penduduk_dan_Ciri-ciri_Asas_Demografi.pdf) (accessed 4 September 2012).
8. Diamantopoulus, A., Schlegelmilch, B.C., Sinkovics, R.R., and Bohlen, G.M., (2003), "Can socio-demographic still play a role in profiling green consumers? A review of the evidence and an empirical investigation", *Journal of Business Research*, Vol. 56, pp. 456-480.
9. D'Souza, C., Mehdi Taghian, and Lamb, P., (2006a), "An empirical study on the influence of environmental labels on consumers", *Corporate Communications: An International Journal*, Vol. 11 No. 2, pp. 162-173.
10. D'Souza, C., Mehdi Taghian, Lamb, P., and Peretiatkos, R., (2006b), "Green products and corporate strategy: an empirical investigation", *Society and Business Review*, Vol. 1 No. 2, pp. 144-157.
11. Environmental History Timeline, (2009), "Ancient civilisations", available at <http://www.environmentalhistory.org> (accessed 30 June 2009).



12. Global Ecolabeling Network. (2013). What is Ecolabeling? Retrieved February 13th, 2013, from [http://www.globalecolabelling.net/what\\_is\\_ecolabelling/](http://www.globalecolabelling.net/what_is_ecolabelling/)
13. Hair, J. F., Black, W.C., Babin, B.J., Anderson, R.E., and Tatham, R.L., (2006), *Multivariate Data Analysis. 6th Ed.*, Pearson Prentice Hall, New Jersey.
14. Haron, S.A., Paim, L., and Yahaya, N., (2005), "Towards sustainable consumption: an examination of environmental knowledge among Malaysians" *International Journal of Consumer Studies*, Vol. 29 No. 5, pp. 426-436.
15. Hawthorne, M. and Alabaster, T., (1999), "Citizen 2000: development of a model of environmental citizenship", *Global Environmental Change*, Vol. 9, pp. 25-34.
16. Ibrahim, R. (2004), "Promoting environmental literacy in Malaysian society - Challenges and opportunities", *Jurnal Pengajian Umum*, Vol. 5, pp. 51-62.
17. International Organizations for Standards (ISO). (2004). ISO - Environmental Management. Retrieved February 13th, 2013, from <http://www.iso.org/iso/home/standards/management-standards/iso14000.htm>.
18. Klockner, C. A. and Ohms, S., (2009), "The importance of personal norms for purchasing organic milk", *British Food Journal*, Vol. 111 No. 11, pp. 1173-1187.
19. Laroche, M., Bergeron, J., and Forleo, G.B., (2001), "Targeting consumers who are willing to pay more for environmentally friendly products", *Journal of Consumer Marketing*, Vol. 18 No. 6, pp. 503-520.
20. Martin, B. and Simintiras, A.C., (1995), "The impact of green product lines on the environment: does what they know affect how they feel?", *Marketing Intelligence & Planning*, Vol. 13 No. 4, pp. 16-23.
21. Mat Said, A., Ahmadun, F., Paim, L., and Masud, J., (2003), "Environmental concerns, knowledge and practices gap among Malaysian teachers", *International Journal of Sustainability in Higher Education*, Vol. 4 No. 4, pp. 305-313.
22. Md Harizan, S.H., (2006), A Study of Socio-Demographic and Personal-Philosophical Values on Environmental Consciousness, MBA thesis, Universiti Sains Malaysia.
23. Mohd.Taha, F., (2003), "Development of Energy Labelling in Malaysia; Past, Present and Future", Paper presented at the APEC Seminar on Cooperation on Energy Labelling, 17-19 November 2003, Kaohsiung, Chinese Taipei.

24. Nik Abdul Rashid, N.R., (2007), *Employee Involvement in EMS/ISO14001 and Its Spillover Effect in Creating Consumer Environmentally Responsible Behavior*, PhD thesis, Universiti Sains Malaysia.
25. Nordlund, A. M. and Garvill, J., (2003), "Effects of values, problem awareness, and personal norm on willingness to reduce personal car use", *Journal of Environmental Psychology*, Vol. 23, pp. 339-347.
26. Razalli, M.R., Abdullah, S., and Yusoff, R.Z., (2012). Is *halāl* Certification Process "Green"? *The Asian Journal of Technology Management*, 5(1), 33-41.
27. Roberts, J. A., (1996), "Green Consumers in the 1990s: Profile and Implications for Advertising", *Journal of Business Research*, Vol. 36, pp. 217-231.
28. Rostow, W.W., (1960), *The stages of economic growth a non-communist manifesto*, University Press, Cambridge.
29. Sabri, M.F., and Teoh, Y.Y., (2006), "Tahap Keperihatinan Alam Sekitar dan Amalan Penggunaan Hijau Pengguna di Petaling Jaya, Selangor", *Pertanika Journal of Social Science & Humanity*, Vol. 14 No.2, pp. 95-109.
30. Sammer, K. and Wüstenhagen, R., (2006), "The Influence of Eco- Labelling on Consumer Behaviour – Results of a Discrete Choice Analysis for Washing Machines", *Business Strategy and the Environment*, Vol. 15, pp. 185-199.
31. Schlegelmilch, B. B., Bohlen, G.M., and Diamantopoulus, A., (1996), "The link between green purchasing decisions and measures of environmental consciousness", *European Journal of Marketing*, Vol. 30 No. 5, pp. 35-55.
32. Sekaran, U., (2003), *Research Methods for Business: A Skill Building Approach (4th Ed.)*, John Wiley & Sons (Asia) Pte. Ltd., Singapore.
33. Shamdasani, P., Chon-Lin, G., and Richmond, D., (1993), "Exploring green consumers in an oriental culture: Role of personal and marketing mix", *Advances in Consumer Research*, Vol. 20, pp. 488-493.
34. Stern, P. C., (2000), "Toward a coherent theory of environmentally significant behaviour", *Journal of Social Issues*, Vol. 56 No. 3, pp. 407-424.
35. Stern, P. C., Dietz, T., Ruttan, V.W., Socolow, R.H., and Sweeney, J.L., (Ed.), (1997), *Environmentally significant consumption*, National Academy Press for the National Research Council, Washington, D.C.

36. Tan, B.C. and Lau, T.C., (2009), "Examining Sustainable Consumption Patterns of Young Consumers: Is There A Cause for Concern?", *The Journal of International Social Research*, Vol 2 No. 9 (Fall), pp. 1-8.
37. Tang, C. K., (2005), "Energy Efficiency in Residential Sector. Malaysian - Danish Environmental Cooperation Programme Renewable Energy and Energy Efficiency Component", available at [http://www.google.com/url?sa=t&source=web&cd=1&sqi=2&ved=0CBcQFjAA&url=http%3A%2F%2Fwww.eib.org.my%2Fupload%2Ffiles%2FEnergy%2520Efficiency%2520in%2520Residential%2520Sector.doc&rct=j&q=Malaysian%20%20Danish%20Environmental%20Cooperation%20Programme%20tang&ei=dJQeTsvBHsPwrQee9IWIAG&usg=AFQjCNGsG\\_OJSoS4ykf4zsEgIE3l41UqVw](http://www.google.com/url?sa=t&source=web&cd=1&sqi=2&ved=0CBcQFjAA&url=http%3A%2F%2Fwww.eib.org.my%2Fupload%2Ffiles%2FEnergy%2520Efficiency%2520in%2520Residential%2520Sector.doc&rct=j&q=Malaysian%20%20Danish%20Environmental%20Cooperation%20Programme%20tang&ei=dJQeTsvBHsPwrQee9IWIAG&usg=AFQjCNGsG_OJSoS4ykf4zsEgIE3l41UqVw) (accessed 3 March 2005).
38. Tanner, C. and Kast, S.W., (2003), "Promoting Sustainable Consumption: Determinants of Green Purchases by Swiss Consumers", *Psychology & Marketing*, Vol. 20 No. 10, pp. 883–902.
39. Thøgersen, J., (1999), "The Ethical Consumer. Moral Norms and Packaging Choice", *Journal of Consumer Policy*, Vol. 22 No. 4, pp. 439-460.
40. Thøgersen, J., (2000), "Psychological Determinants of Paying Attention to Eco-Labels in Purchase Decisions: Model Development and Multinational Validation", *Journal of Consumer Policy*, Vol. 23, pp. 285-313.
41. Thøgersen, J., Haugaard, P. and Olesen, A., (2010), "Consumer responses to ecolabels", *European Journal of Marketing*, Vol. 44 No. 11/12, pp. 1787-1810.
42. Yam-Tang, P.Y. and Chan, Y.K., (1998), "Purchasing behaviours and perceptions of environmentally harmful products", *Marketing Intelligence & Planning*, Vol.16 No. 6, pp. 356-362.
43. Wang Rui-Chen. (2007). Harmonious development between green marketing and high-tech product [Electronic Version]. Retrieved Feb 28th, 2010 15:48 from <http://www.cqvip.com/qk/88595x/200705/25652527.html>.
44. Young, W., Kumju Hwang, McDonald, S., and Oates, C.J., (2009), "Sustainable Consumption: Green Consumer Behaviour when Purchasing Products", *Sustainable Development*, DOI: 10.1002/sd.394