UNIVERSITI PUTRA MALAYSIA

CONSUMER INTENTION TO PURCHASE ECO-LABELLED FOOD PRODUCTS IN KLANG VALLEY, MALAYSIA

SALEH NAJAFINEJAD

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CONSUMER INTENTION TO PURCHASE ECO-LABELLED FOOD PRODUCTS IN KLANG VALLEY, MALAYSIA

By

SALEH NAJAFINEJAD

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science December 2013
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DEDICATIONS

To My Parents
Mohammad and Monireh,
I always appreciate your love, support and encouragement.
Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

CONSUMER INTENTION TO PURCHASE ECO-LABELLED FOOD PRODUCTS IN KLANG VALLEY, MALAYSIA

By

SALEH NAJAFINEJAD

December 2013

Chairman: Professor Zainal Abidin Mohamed, PhD

Faculty: Agriculture

The increasing concern among Malaysian consumers on issues such as food safety, environmental protection and animal welfare indicate that nowadays, consumers are not only concerned about the health aspects of food products but they are also very careful on how the products are being produced. Eco is used as a prefix for words related to the environment or ecology. Thus, any product or trade named with eco usually means that the product is produced and processed in an environmentally friendly way. Eco-labeling, which is a voluntary, is an attempt to provide the consumers with relevant information about a product which qualified as having improved environmental performance and efficiency compared to similar products.

The objective of this study is to determine the level of Malaysian consumers’ awareness, attitudes, and intention to purchase eco-labeled food products. The survey was conducted in Klang Valley. The Theory of Planned Behaviour (TPB) is applied in this study. The questionnaires, which contains closed ended statements using 7-point Likert scale, were distributed randomly to respondents. The target consumers for this research were consumers who purchase food products from supermarket. Sample size of this study is 1115. The structured questionnaire design consists of three main sections. Characteristics of the respondents are included in the first section. The second section measures the awareness and knowledge of consumers’ towards eco-labeled food products. The third section is designed to measure the attitude, subjective norm and perceived behavioural control that influence the consumer’s green behaviour. Descriptive statistics, chi-square, factor analysis and binary logistic regression were used to analyze the data.

The results show that majority of the respondents believe that eco-labelled food products are produced in a sustainable way to protect the environment. It also shows that there
are significant differences between the consumer’s awareness towards eco-labeled food products and social demographic profile such as age, geographical area, educational level and income. The result of chi-square test indicates that selected socio-demographic variables such as gender, living area, marital status, educational level, income and age have a significant relationship with consumer awareness and knowledge towards eco-labeled food products in Malaysia. Exploratory factor analysis (EFA) was used to uncover underlying factors resulting in awareness of the existing of eco-labeled products. Four factors identify the consumer awareness towards eco-labeled food products, which are the attitude, society influence, product price and ability to perform, with 62.76 percent of total variance. In addition, the results of logistic regression model suggest that consumers who have higher income and educational level, and younger in age are more aware of eco-labeled food products and they are more likely to have a higher intention towards consuming the products. Thus food producers required to pay closer attention to the changes in consumer’s needs and demands, and develop appropriate marketing strategies that addressed the changing trends.
Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

NIAT PENGGUNA UNTUK MEMBELI PRODUK MAKANAN ECO-LABEL DI LEMBAH KLANG, MALAYSIA

Oleh

SALEH NAJAFINEJAD

Disember 2013

Pengerusi: Professor Zainal Abidin Mohamed, PhD

Fakulti: Pertanian

Peningkatan pada tahap keprihatinan terhadap kepentingan lestari di kalangan pengguna Malaysia mengenai isu-isu seperti keselamatan makanan, perlindungan alam sekitar dan kebajikan haiwan menunjukkan bahawa pengguna di masa ini bukan sahaja mengambil berat tentang aspek kesihatan produk makanan tetapi mereka juga amat berhati-hati tentang cara penyediaan produk tersebut. Istilah eko digunakan sebagai awalan perkataan yang berkaitan dengan persekitaran atau ekologi. Oleh itu, mana-mana produk yang mempunyai awalan perkataan eko biasanya bermaksud bahawa produk tersebut dihasil dan diproses dalam keadaan mesra alam. Label eko, yang merupakan label yang digunakan secara sukarela, adalah satu usaha untuk memberitahu pengguna dengan informasi berkaitan kelayakan produk tersebut setelah mempunyai peningkatan prestasi dan kecekapan alam sekitar berbanding produk yang mempunyai persamaan dengannya.

untuk menganalisis data.

Keputusan menunjukkan bahawa majoriti responden percaya bahawa produk makanan yang mempunyai label eko telah dihasilkan dalam cara yang mampam untuk melindungi alam sekitar. Ia juga menunjukkan bahawa terdapat perbezaan yang signifikan antara kesedaran pengguna terhadap produk makanan yang mempunyai label eko dan profil demografi sosial seperti umur, kawasan geografi, tahap pendidikan dan pendapatan. Keputusan ujian chi-square menunjukkan bahawa beberapa pembolehubah sosio-demografi seperti jantina, kawasan tempat tinggal, status perkahwinan, tahap pendidikan, pendapatan dan umur mempunyai hubungkait yang signifikan dengan kesedaran pengguna terhadap produk makanan yang mempunyai label eko di Malaysia. Analisis faktor eksploratori (EFA) telah digunakan untuk mengetahui faktor asas yang mempengaruhi kesedaran tentang wujudnya produk yang mempunyai label eko. Empat faktor telah dikenal pasti mempengaruhi kesedaran pengguna tentang produk makanan yang mempunyai label eko iaitu sikap, pengaruh masyarakat, harga produk dan keupayaan untuk melaksanakan, dengan jumlah perbezaan 62.76 peratus. Di samping itu, keputusan model regresi logistik menunjukkan bahawa pengguna muda yang mempunyai pendapatan and pendidikan yang tinggi mempunyai lebih kesedaran tentang produk makanan yang mempunyai label eko dan mereka lebih cenderung untuk mengunakan produk tersebut. Justeru, pengeluar makanan perlu memberi lebih perhatian kepada perubahan pada keperluan dan permintaan pengguna, dan membina strategi pemasaran yang dapat menangani perubahan tren tersebut.
ACKNOWLEDGEMENTS

It is evident that the success of any thesis depends largely on the encouragement and guidelines of many who oversee the researcher. I would like to take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this thesis. I want to give gratitude to the following people for their invaluable help and support.

I would like to show my greatest appreciation and deepest gratitude to Prof. Dr. Zainal Abidin Mohamed for the continuous support of my master study and research, for his patience, motivation, enthusiasm, and immense knowledge. Dear Prof. Zainal, I will never be able to thank you enough for your tremendous support and help. I felt motivated and encouraged every time I entered your office. Without your encouragement and guidance this thesis would not have materialized. Your guidance has helped me at all times of the research and writing of this thesis. I could not have imagined having a better supervisor for my master’s studies.

Besides my supervisor, I would like to thank my committee members, Dr. Juwaidah Sharifuddin and Dr. Nitty Hirawaty Kamarulzaman for their encouragement, insightful comments, and intriguing questions. I am grateful for their constant support and help.

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I would like to thank my parents for allowing me to realize my own potential. All the support they have provided me over the years is the greatest gift anyone can ever give me. I would like to especial thank my elder brother and sister for supporting me and encouraging me and showering me with their best wishes.
I certify that a Thesis Examination Committee has met on September 2013 to conduct the final examination of Saleh Najafinejad on his thesis entitled "Consumer Intention to Purchase Eco-labelled Food Products in Klang Valley, Malaysia" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science.

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**BUJANG BIN KIM HUAT, PhD**  
Professor and Dean  
School of Graduate Studies  
Universiti Putra Malaysia

Date:

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Declaration by graduate student
I hereby confirm that:

- this thesis is my original work;
- quotations, illustrations and citations have been duly referenced;
- the thesis has not been submitted previously or concurrently for any other degree at any institutions;
- intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia;
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Signature: ______________________ Date: 20 December 2013

Name and Matric No: SALEH NAJAFINEJAD GS31829
Declaration by Members of Supervisory
This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as slated in Rule 41 in Rules 2003 (Revision 2012-2013) were adhered to;

Signature: ______________________ Signature: ______________________

Zainal Abidin Mohamed
(Chairman)                Juwaidah Sharifuddin
(Member)

Signature: ______________________

Nitty Hirawaty Kamarulzaman
(Member)
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<td>GDA</td>
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<td>GDP</td>
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<td>GMO</td>
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<td>TAM</td>
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<td>Theory of Reasons Action</td>
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<td>TRESS</td>
<td>Treat Every Environment Special Sdn. Bhd</td>
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<td>USDA</td>
<td>United State Department of Agriculture</td>
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<td>VIF</td>
<td>Variance Inflation Factor</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WTP</td>
<td>Willingness to pay</td>
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<tr>
<td>CFP,</td>
<td>Carbon Footprint</td>
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<td>GHG,</td>
<td>Greenhouse Gas</td>
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CHAPTER 1

INTRODUCTION

1.1 Background of the study

Agricultural sector remains one of the important sectors in the economy of Malaysia. The main cash crops such as rubber and palm oil have dominated agricultural exports ever since, although the Malaysian share of the world’s production of rubber has gradually declined over the last 20 years. In addition to them, Malaysian farmers produce a number of fruits and vegetables for the domestic market, including bananas, coconuts, durian, pineapples, rice, rambutan and others. The Malaysian tropical climate is preferred by the production of various exotic fruits and vegetables.

The agricultural sector also plays an important role in Malaysia’s economic development providing rural employment, uplifting rural incomes and ensuring national food. The agricultural sector is slowly changing entrepreneurial farmers in diverse businesses from swiftlet nest ranching to large-scale paddy farming have been able to move in to Malaysia’s top 20 percent income group (Economic Transformation Programme, 2010). Agriculture is the foundation of a country’s economy. Malaysian government takes a serious view on this phenomenon where a total of RM3.8 billion is allocated for the agriculture sector in 2012 Budget. Although the services sector is now taking over the manufacturing sector as a contributor to economic growth, agriculture is still important because it can increase the income of farmers, fishermen, agro-based industries and ensure the nation’s food supply remain sufficient (Department of Statistics, 2010). The contribution of agriculture to the Gross Domestic Product (GDP) has declined from 28.8 percent in 1970 to 7.5 percent in 2007. As shown in Table 1.1, GDP of agricultural sector has sustained the percentage of contribution to overall GDP at 7.9 percent in 2009, 7.6 percent in 2010 and 7.7 percent in 2011.

Figure 1.1 shows the commodity sectors which are the main contributor of GDP in agriculture. Accounting for more than 52.0 percent per year for the period of 2006-2010 (Department of statistics, 2010). Oil palm was one of the important commodities, followed by fisheries and logging sub-sector.

Table 1.2 shows production of major food commodities in Malaysia such as paddy, coconuts, pineapple, fruits, vegetables, livestock and fisheries. The amount of products has been increasing especially in livestock from 1,796 in 2006 to 2,236 in 2010, and from 1,584 in 2006 to 2,010 in 2010. Table 1.3 shows the balance of trade in major agriculture commodities in Malaysia in 2010 and 2011. Malaysia’s total trade balance in 2010 is RM42,266,788, and in 2011 is RM56,067,430. It also shows that the total food products export is RM20,500,003 and total food products import is RM34,449,265 in 2011.

Urban populations in Peninsular Malaysia already represent 67 percent of the total
Table 1.1: GDP by types of Economic Activity at Constant 2005 Prices

<table>
<thead>
<tr>
<th>Types of economic activities</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RM million</td>
<td>Percent</td>
<td>RM million</td>
</tr>
<tr>
<td>Agriculture</td>
<td>50,063</td>
<td>7.9</td>
<td>51,263</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>66,386</td>
<td>10.5</td>
<td>66,122</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>152,150</td>
<td>24.2</td>
<td>170,258</td>
</tr>
<tr>
<td>Construction</td>
<td>19,270</td>
<td>3.1</td>
<td>20,428</td>
</tr>
<tr>
<td>Services</td>
<td>335,027</td>
<td>53.2</td>
<td>359,215</td>
</tr>
<tr>
<td>Intermediate services</td>
<td>136,227</td>
<td>21.6</td>
<td>146,925</td>
</tr>
<tr>
<td>Transport, storage and communication</td>
<td>45,484</td>
<td>7.2</td>
<td>49,122</td>
</tr>
<tr>
<td>Finance, insurance, real estate and business services</td>
<td>90,744</td>
<td>14.4</td>
<td>97,803</td>
</tr>
<tr>
<td>Final Services</td>
<td>152,655</td>
<td>24.2</td>
<td>163,532</td>
</tr>
<tr>
<td>Utilities</td>
<td>16,246</td>
<td>2.6</td>
<td>17,386</td>
</tr>
<tr>
<td>Wholesale and retail trade,</td>
<td>103,444</td>
<td>16.4</td>
<td>111,755</td>
</tr>
<tr>
<td>accommodation and restaurant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other services</td>
<td>32,965</td>
<td>5.2</td>
<td>34,391</td>
</tr>
<tr>
<td>Government services</td>
<td>46,145</td>
<td>7.3</td>
<td>48,758</td>
</tr>
<tr>
<td>Plus : Import duties</td>
<td>6,989</td>
<td>1.1</td>
<td>7,660</td>
</tr>
<tr>
<td>GDP at purchasers’ prices</td>
<td>629,885</td>
<td>100.0</td>
<td>674,946</td>
</tr>
</tbody>
</table>

(Source: Department of Statistics, 2012)

Table 1.2: Production of major food commodities

<table>
<thead>
<tr>
<th>Commodities ('000 Tonnes)</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>2,187</td>
<td>2,375</td>
<td>2,353</td>
<td>2,511</td>
<td>2,464</td>
</tr>
<tr>
<td>Coconuts</td>
<td>513</td>
<td>503</td>
<td>455</td>
<td>379</td>
<td>550</td>
</tr>
<tr>
<td>Pineapples</td>
<td>299</td>
<td>265</td>
<td>385</td>
<td>358</td>
<td>331</td>
</tr>
<tr>
<td>Fruits</td>
<td>1,429</td>
<td>1,434</td>
<td>1,598</td>
<td>1,602</td>
<td>1,641</td>
</tr>
<tr>
<td>Vegetables</td>
<td>573</td>
<td>457</td>
<td>491</td>
<td>624</td>
<td>870</td>
</tr>
<tr>
<td>Livestock</td>
<td>1,796</td>
<td>1,880</td>
<td>1,978</td>
<td>2,071</td>
<td>2,236</td>
</tr>
<tr>
<td>Fisheries</td>
<td>1,584</td>
<td>1,650</td>
<td>1,749</td>
<td>1,865</td>
<td>2,010</td>
</tr>
</tbody>
</table>

(Source: Ministry of Agriculture and Agro-based Industry, 2011)

population, with urban areas growing at a rate of 2.1 percent versus a rural growth rate of 1.4 percent over the same period. This trend is expected to continue as the nation develops. In Peninsular Malaysia alone, 94 percent of the population growth expected between 2000 and 2020 will be concentrated in the urban areas. As shown in Table 1.4, the majority of employed persons are concentrated in urban areas in 2011.

The accelerated phase of industrialization and urbanization in recent decades has inevitably brought about changes in the lifestyle of Malaysians. Although economic development has raised living standard, it brought with it more sedentary but stress-
Figure 1.1: Percentage Share of GDP for Agriculture Sector, Malaysia, 2006-2010

(Source: Department of Statistics, 2011)

Table 1.3: Balance of Trade, 2010-2011

<table>
<thead>
<tr>
<th>Selected Commodity</th>
<th>2010 Exported (RM '000)</th>
<th>2010 Import (RM '000)</th>
<th>Balance (RM '000)</th>
<th>2011 Exported (RM '000)</th>
<th>2011 Import (RM '000)</th>
<th>Balance (RM '000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total in agriculture</td>
<td>106,864,234</td>
<td>64,597,445</td>
<td>-42,266,788</td>
<td>77,568,862</td>
<td>56,067,430</td>
<td>-13,949,262</td>
</tr>
<tr>
<td>Total food products</td>
<td>18,108,690</td>
<td>30,193,302</td>
<td>-12,084,611</td>
<td>20,500,003</td>
<td>34,449,265</td>
<td>-13,949,262</td>
</tr>
<tr>
<td>Rice</td>
<td>1,241</td>
<td>1,609,304</td>
<td>-1,608,063</td>
<td>1,293</td>
<td>1,854,067</td>
<td>-1,852,774</td>
</tr>
<tr>
<td>Fruit</td>
<td>570,295</td>
<td>1,364,489</td>
<td>-794,194</td>
<td>576,653</td>
<td>1,539,128</td>
<td>-962,475</td>
</tr>
<tr>
<td>Vegetables</td>
<td>682,222</td>
<td>2,777,794</td>
<td>-2,095,572</td>
<td>750,788</td>
<td>2,734,600</td>
<td>-1,983,812</td>
</tr>
<tr>
<td>Coconut</td>
<td>19,274</td>
<td>24,681</td>
<td>-5,407</td>
<td>49,263</td>
<td>52,544</td>
<td>-3,281</td>
</tr>
<tr>
<td>Floriculture</td>
<td>345,754</td>
<td>17,054</td>
<td>328,700</td>
<td>354,004</td>
<td>20,106</td>
<td>333,898</td>
</tr>
</tbody>
</table>

(Source: Crop Statistic, 2013)

filled lifestyles, smoking and high fat and salt consumption. Changes in dietary habits and sedentary lifestyles are known to be associated with changes in health and increased prevalence of chronic diseases in the population (Noor, 2002). With the number of
Table 1.4: Number of employed persons in urban and rural areas

<table>
<thead>
<tr>
<th>Labour force</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed persons</td>
<td>12,284</td>
<td>7,890</td>
<td>4,395</td>
</tr>
<tr>
<td>Urban</td>
<td>8,528</td>
<td>5,319</td>
<td>3,210</td>
</tr>
<tr>
<td>Rural</td>
<td>3,756</td>
<td>2,571</td>
<td>1,185</td>
</tr>
</tbody>
</table>

(Source: Department of statistics, 2012)

single person households and young people on the rise, the demand for food outside the home has intensified and Malaysian consumer tastes and trends are evolving (Berry, 2010). Fast-paced lifestyles have led to a growth in convenience foods, such as snack food, packaged food and take out.

Malaysia faces increasing incidences of lifestyle-related diseases and by 2020 will have reached an ageing nation status with 10 percent of the total population above the age of 60. Greater concerns over health, wellness and quality food have led to growing demand for health foods, organic and light products, and natural and minimally processed fresh foods. The importance of consumer education and participation in food control is gaining recognition and acceptance worldwide.

1.2 Food Industry in Malaysia

The current population of 28.55 million of Malaysia is supposed to increase regularly over the years. Food industry has been affected by the changes in socio-demographic and economic structures. These changes have directly or indirectly influenced the production of foods required by the increasing population. Likewise, the standard of living has improved by a paradigm shift in consumer lifestyle, taste and preferences, and the necessity for manufactured food, convenience food and health food has been raised by the wealthy society along with high purchasing power and technical progress in agriculture and marketing. Accordingly, the need for functional, organic, green and natural food has escalated by the increase in the consumer awareness of safety, quality, healthy and nutritious value of food. There are great chances for exponential increase in safe and natural food in Malaysia, considering all the variations in demand for all kinds of food industry.

In Malaysia, the food industry is variegated with many types of foods with Asian tastes. A crucial section of agro-based industry in Malaysia is the industry of processed foods and beverages. In 2010, the food processing industry contributed about 10 percent of the Malaysian manufacturing output and attracted a total value of RM1.972 billion (Market Watch, 2012). Nevertheless, small and medium scale enterprises constitute Malaysia’s food industry. There are more than 9,000 food processing factories in Malaysia, of which 95 percent are classified as small-scale (Senik, 1999). The Malaysian food industry is dominated by small and medium scale companies. The major sub-sectors
are fish and fish products, livestock and livestock products, fruits, vegetables and cocoa (Fauzi, Senic, & Khairy, 2011). The sub sector of fisheries products is one of primary sections of exporting the processed foods under the processed food segment. Most of the processing establishments are small and mainly located along the coastal zone, close to fish landing points except for bigger establishments that process canned, frozen, surimi and surimi-based products. Traditional fish products processed in Malaysia can be broadly categorized into fish snacks, salted and dried, surimi and surimi-based, fermented and miscellaneous products (Biusing, 2001). Malaysia is the third largest manufacturer of poultry meat in the livestock sub sector in Asia Pacific area. Although Malaysia is largely self-sufficient in poultry, pork, and eggs (Market watch, 2012), it imports approximately 88 percent of its beef requirement from various countries in the form of fresh chilled and frozen meat and live animals to meet the local beef demand (Yasmin et al. 2003). In the vegetables and fruits sub-sector, interests in cultivation of dragon fruits are growing among farmers and most of the dragon fruits are for the domestic market consumption. Vegetables are small-scale cultivation products for fresh use and are chiefly exported to Singapore. Johor, Pahang, Kelantan and Perak are the main places for farming vegetables.

According to the Malaysian Industry Development Authority (MIDA), the global retail sales in food products are expected to grow at an annual rate of 4.8 percent to US $6.4 trillion by 2020. Table 1.5 shows the sales value of selected Malaysian processed foods and beverage products. The value has increased 24.5 percent from RM 18 billion in 2007 to RM 22.4 billion in 2008 due to the increase in the domestic consumption. The manufacturers of condensed, powdered and evaporated milk (RM 4.1 billion), cocoa products (RM 3.8 billion), sugar and flour mills (RM 2.1 billion) have the highest sales figures.

The food industry in Malaysia grows steadily; however, the country is still a great importer of food either for food manufacturing industry or for the end consumer. Consumption goods which constitute 7.3 percent of total imports, have increased to RM536.9 million (16.8 percent) from RM3.2 billion. The main components contributing to the rise are processed foods & beverages (Department of Statistics, 2012). Processed foods are exported to 80 countries, with an annual export value of more than USD2.6 billion. Food manufacturers operating in Malaysia include both Malaysian and multinational companies such as Nestle, Unilever, Cerebos, and Campbell Soup (Food Export Association, 2011). Malaysia is the largest supplier of processed foods to Singapore, with a share of 17 percent of the republic’s total imports of processed foods from the world (The Star Online, 2012). Exports of agro-based products increased from RM60.9 billion in 2005 to RM80.4 billion in 2009. The total export value of frozen food to Australia and the Netherlands increased from RM39.7 million in 2005 to RM123.4 million in 2009. The total export value of processed foods to the People’s Republic of China, Japan, the Netherlands and Saudi Arabia increased from RM1.5 billion in 2005 to RM2.3 billion in 2009 (10th Malaysia Plan , 2010).
Table 1.5: Sales of Selected Processed Food and Beverages Products in 2007 and 2008

<table>
<thead>
<tr>
<th>Segment</th>
<th>2007 (RM '000)</th>
<th>Change (%)</th>
<th>2008 (RM '000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processed Food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocoa products</td>
<td>2,512,268</td>
<td>49.6</td>
<td>3,758,837</td>
</tr>
<tr>
<td>Preserved of fish and fish products</td>
<td>1,051,615</td>
<td>0.4</td>
<td>1,055,932</td>
</tr>
<tr>
<td>Snack</td>
<td>422,433</td>
<td>38.6</td>
<td>585,595</td>
</tr>
<tr>
<td>Biscuits and Cookies</td>
<td>837,480</td>
<td>4.6</td>
<td>875,724</td>
</tr>
<tr>
<td>Chocolate products and Sugar confectionery</td>
<td>680,954</td>
<td>-16.3</td>
<td>569,701</td>
</tr>
<tr>
<td>Sugar</td>
<td>2,225,481</td>
<td>-6.4</td>
<td>2,082,004</td>
</tr>
<tr>
<td>Flour mills</td>
<td>1,440,513</td>
<td>42.3</td>
<td>2,050,441</td>
</tr>
<tr>
<td>Rice</td>
<td>687,080</td>
<td>46.3</td>
<td>1,005,087</td>
</tr>
<tr>
<td>Condensed, powdered and evaporated milk</td>
<td>3,649,417</td>
<td>11.1</td>
<td>4,054,995</td>
</tr>
<tr>
<td>Sauces</td>
<td>465,023</td>
<td>8.2</td>
<td>502,923</td>
</tr>
<tr>
<td>Coconut Oil</td>
<td>65,987</td>
<td>-0.6</td>
<td>65,573</td>
</tr>
<tr>
<td>Pineapple canning</td>
<td>71,966</td>
<td>-20.8</td>
<td>56,980</td>
</tr>
<tr>
<td>Vegetable and Animal Oils and Fats</td>
<td>1,482,131</td>
<td>87.1</td>
<td>1,330,077</td>
</tr>
<tr>
<td>Beverages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft drinks</td>
<td>855,449</td>
<td>19.4</td>
<td>1,021,452</td>
</tr>
<tr>
<td>Mineral Waters</td>
<td>88,532</td>
<td>39.8</td>
<td>123,743</td>
</tr>
<tr>
<td>Total</td>
<td>18,022,273</td>
<td>24.5</td>
<td>22,443,742</td>
</tr>
</tbody>
</table>

(Source: Market Watch Malaysia, 2010)

1.3 History of Food Label

It is almost a century since food labelling was initiated in the USA. The USA also saw the first Food and Drugs Act in June 1906, partly as a result of the exposure of the deplorable state of sanitary conditions in meat-packing plants through the publication of 'The Jungle' written by Upton Sinclair. This was followed by the Food, Drug, and Cosmetic Act (FDCA) in 1938 which included standards for the food industry and the implementation of factory inspections and new remedies for violations which included court injunctions, as an addendum to the previous seizure and prosecution remedies. The US government’s involvement in the issue of food labelling contributed to fair competition among producers as well as increased information access and reduced safety and health risks for consumers (Freeland et. al, 2002). Bruce Silverglade’s major role in the passing of the Food Labelling and Education Act 1990 earned him the label of "Father of Food Labelling".

Food labelling, among many other aspects covering the broad spectrum of "from farm to fork," and is only one aspect of food law. The first Food and Drugs Act was passed in the USA in June 1906. This act was in part a reaction to Upton Sinclair’s book, ‘The Jungle’, that disclosed unsanitary conditions in meat-packing plants. In 1938, the Food,
Drug, and Cosmetic Act (FDCA), preempted the Food and Drugs Act of 1906 in the USA. It created food standards, authorized inspections of factories, and provided for court injunctions as remedy for violations, in addition to the already existing seizure and prosecution remedies. The movement toward federal regulation of foodstuffs also entailed a movement toward disclosure of food contents. The 1938 FDCA required in part that the label of every processed and packaged food contain the name of the food, its net weight, and the name and address of the manufacturer or distributor. Thus the evolution of U.S. food law has been a response to some of the following concerns: food safety problems, nutrition concerns, economic issues, environmental issues, agricultural protection, or food security threats. Since then several Acts and regulation have been introduced and implemented to ensure that consumers know what they eat and consume.

Countries all over the world have followed suit in implementing the labelling and food act. New developments have occurred in the areas of country of origin (COO) labelling, nutrient content claims, trans fat labelling, organic food labelling, natural food labelling, food allergens, animal production claims, hormone labelling, irradiated food labelling, biotechnology labelling, eco-labelling and so on.

The passing of the US Food Labelling Act galvanized other nations to also embark on similar quests to provide consumers with nutritional information on their food products. What began initially as a voluntary measure soon became a legal requirement particularly with advances in food technology especially in the more developed countries. Canada passed a regulation making food labelling mandatory for processed food products in January 2003 while in the United Kingdom the Food Advisory Committee carried out and completed a review of the British food market and related health control measures in 1996, encompassing all food, beverages and supplements.

Nutrition labelling of food in Malaysia used to be optional for most food items other than special functional foods, similar to most Asian nations, the Ministry of Health announced its intention in 2000 to amend the situation and enforce mandatory nutrition labelling (Bagchi, 2008). The categories of foods requiring labels in Malaysia include the following: prepared cereal foods/bread/milk and powdered milk products/canned meat/canned fish/canned vegetables/canned fruit and fruit juices/soft drinks and botanical beverages. Product information provided in food product labels should provide consumers with adequate and reliable information about the product as related to its type, quality and components (Nordic Council of Minister, 2001). Many commonly consumed foods which contain poor nutritional constituents are now required by law to have labels. Such nationally popular food items are selected using the criteria of frequency and quantity of consumption and its importance to the community. This is further extended to include declaration of sugar content in sweets and beverages (WHO, 2004).

Increasing interests in the relationship between diet and health has led to a focus on nutritional aspects of the food supply. People were becoming increasingly health conscious and are demanding for more nutritious food as well as balanced diets in their daily food intake than any other time in history (Levy & Fein, 1998). Most customers
spend more money on food than other items. The renowned Roman physician, Galen, who lived in 2nd century AD, has already stated that moderation in dietary habits to achieve sound nutrition and good health is going to be a trend in the future (Hutt, 1995). This statement is now becoming reality where consumers’ today demand for high-quality products produced in environmentally friendly conditions. Such movement or shift in consumer preferences has caused changes in the functioning of the food production, processing and marketing sector. Although food companies are motivated by profitability derived from doing the agribusiness of supplying quality-differentiated products but at the same time designing food labelling is a policy to achieve a social objective like providing healthier, safe and environmentally friendly food to the population (Golan, 2001).

Food manufacturing industries produce a wide range of food items for consumers by various methods of refining and processing, which are standardized, quick, easy to prepare and attractive. One of the main issues in food manufacturing industry is how important food labelling is in providing sufficient information on nutrition content of the food to consumers. The concern about the relationship between sufficient nutrition content of food and health has existed.

The US was one of the first countries that formed just over two centuries ago. The first Food and Drugs Act was passed in USA in June 1906. This act was in part a reaction to Upton Sinclair’s book, ‘The Jungle’, that disclosed unsanitary conditions in meat-packing plants. In 1938, the Food, Drug, and Cosmetic Act (FDCA), USA preempted the Food and Drugs Act of 1906. It created food standards, authorized inspections of factories, and provided for court injunctions as remedy for violations, in addition to the already existing seizure and prosecution remedies. In the US there are three main groups of legislators that cover food labelling and nutrition fact labelling for the purpose of protecting consumer interests: These group are; United State Department of Agriculture (USDA), Food & Drug Administration (FDA) and Food Labelling and Education Act 1990 (NLEA).

Under the provision of the Food Labelling and Education Act by May 1994 all of the food companies were required to use the new food and food label as a mandatory programme in USA. A key element of the new label was the “Nutrition Facts” panel that gives consumers significant information about the nutritional content of foods. The FDA designed nutrition facts were easy to read and easy to use by the average consumer without even using the calculator to figures out what consumers were getting in a product. It was also intended that the buyers did not need to understand grams and calories. The Percentage Daily Value column tells consumers in bold print whether the food is low or high in the key nutrients, fat, saturated fat, cholesterol, sodium and carbohydrates. In addition to “Nutrition Fact” panel, label claims like “lite” or “reduced fat” must meet standard definitions and must have reconfirmed in food labels (Neuhouser, Kristal, & Patterson, 1999).

The government intervention in food labelling in the US has served three main purposes,
that are; to ensure fair competition among producers, to increase consumer’s access to information, and reduce risks to individual consumer safety and health (Freeland & Nitzke, 2007). Bruce Silverglade has been the director of legal affairs in the Centre for Science Public since 1981; He could well be called the “Father of Food Labelling” due to his leadership role in the passage of the landmark Food Labelling and Education Act 1990. Food labelling is a key factor in helping consumers to make healthy food choices.

After the US introduced the food-labelling act, other countries began to pursue programmes in nutrition information. At first it was introduced to the food producers as a voluntary programme, but with the growth of technology for example in more advanced countries like Canada under the new published regulation in January 2003, accommodating food labelling for most processed foods is mandatory.

In 1996 the Food Advisory Committee (FAC), of the United Kingdom completed its review of the British market for functional foods and the control of health claims. The scope of this was that they applied this to all food and drinks, including food supplements. Because of the integral relation between food, health and the capacity of food labelling to convey information to consumers, the Food Standards Australia New Zealand (FSANZ) has reviewed its food regulatory. FSANZ’s primary objectives in developing food regulation are: the protection of public health and safety; the provision of adequate information relating to food to enable consumers to make informed choices; and the prevention of misleading or deceptive conduct (Lewis & Jefferson, 2000). Asian countries are likely to embrace higher labelling standards. For example additional labelling laws may require open dating (to describe product freshness), unit pricing (to state the product cost in standard measurement unit), and percentage labelling (to show the percentage of each important ingredient) (Kotler, 1999). In Hong Kong for example specifics require that manufactured food “shall be marked or labelled with a list of nutrient and listed in descending order of weight and volume. It requires these labels only on manufactured food (Yuen, 2003).

1.4 Food Label in Malaysia

During the last two decades, Malaysia has been experiencing a phenomenal economic growth. The growth include a major structural transformation i.e. moving from agriculture to manufacturing-based economy with remarkable social changes. The natural environment has been significantly affected by this quick development. Thus, sound programmes and policies are formulated to make sure that development continues together with appropriate management of the environment. Considering this, in 1974, the government introduced an enabling legislation called the Environmental Quality Act 1974. The Environmental Quality Act aimed to prevent, abate and control pollution, and also to improve the quality of the environment in this country. The Department of Environment has been committed to perform this legislation and ensure that Malaysia will go on with a healthy living environment as well as an industrial growth.

The Food Act 1983 (Act 281 of the Laws of Malaysia) and the Food Regulations 1985
of Malaysia govern the various aspects of food safety and quality control including food standards, food hygiene, food import and export, food advertisement and accreditation of laboratories. The enforcement of Food Act 1983 and the Food Regulations 1985 is targeted towards reducing food-born hazards and ensuring that food is safe for human consumption.

The Food Safety and Quality Division (FSQD) of the Ministry of Health (MOH) is charged with the implementation and enforcement of the law. FSQD implements an active food safety programme which includes routine compliance, sampling, food premises inspection, food import control activity and licensing of specified food substances required under Food Act 1983 and its Food Regulation 1985. It also conducts a food monitoring activity on specific food contaminants and additives. As a preventive approach, the FSQD have been implementing food handlers training programme, vetting of food labels, giving advice to the industry and consumers, and food safety certification scheme such as Health Certificate, HACCP certification and Free Sale Certificate.

The Food Act 1983 (Act 281 of the Laws of Malaysia) and the Food Regulations 1985 were aimed at ensuring reduction in food-borne hazards and food safe for human consumption. Implementation of these acts and regulations which regulate food safety and quality aspects which encompass food standards, food hygiene, food import and export, food advertisement and accreditation of laboratories is under the jurisdiction of the Food Safety and Quality Division (FSQD) of the Ministry of Health (MOH). To ensure food safety FSQD’s routine activities include ensuring compliance, sampling, food premises inspection, food import control activity and licensing of specified food substances required by law in addition to monitoring of specific food contaminants and additives. Apart from its enforcement activities FSQD also plays a proactive role in developing awareness and education of food handlers through food handlers training programmes, vetting of food labels, giving advice to the industry and consumers, and food safety certification schemes such as the Health Certificate, HACCP certification and Free Sale Certificate.

The Malaysian government is strongly engaged in food safety promoting, environmental protection and animal welfare in food manufacturing industries and food production. As concerns about pathogens and food pollution have significantly increased, food safety has become a serious issue in the society; thus, the government is obliged to establish some sound agricultural practices. Take for example, GAPs (Good Agricultural Practices) which are an integrated farming system. The main objective of GAPs is to handle effectively all crop production resources in a sustainable and safe way. It is expected that the system will increase the productivity of farms with the production of good quality and safe food which as a result, the workers’ welfare, safety and health and protection of the environment will be improved consistently (FAO, 2003).

In 1996, the Standards and Industrial Research Institute of Malaysia (SIRIM) was established which was the product certification programme. Since March 1997, the
activities of SIRIM’s certification were assigned to the supplementary SIRIM Quality Assurance Services (SIRIM QAS), which is a wholly owned company of the Malaysian Government under the Ministry of Finance Incorporated. In fact, they try to discover and develop new technologies to promote competition among businesses through quality and innovation. SIRIM Berhad has enabled Malaysian products and services to be significantly recognized in quality and innovativeness worldwide. It is worth emphasizing that consumer awareness of the environment and preference for more environmentally benign products appears to be growing steadily in Malaysia. In this respect, the Malaysian government has responded very positively to this challenge.

Private label products, also commonly known as name brand, store brand, own label, retailer brand or generics, are brands which are retailer owned rather than by the producer or manufacturer (Market annual report, 2010). Tesco a hypermarket with its own private label has made efforts to improve its nutrition label design and display in Malaysia as follows;

![Tesco Private Label](Source: Tesco Homepage a sample of front-of-pack labels, 2012)

**Figure 1.2: Tesco Private Label**

1.5 History of Eco-Label

Eco means environment, surroundings or habitat. Moreover, Eco is used as a prefix for words related to the environment or ecology. Thus, any product or trade named with ”eco” usually means that the product is being produced and processed in friendly environment. Eco-labelling which has been popular in recent years, is known as an attempt to provide the consumers with the necessary information about a product which is qualified by improved ”environmental performance and efficiency” compared to
similar products (Basu, 2003). This means that eco-label which is a voluntary label, provides the consumers with the information about the environmental implications related to all life components of a product such as its production, distribution, use and disposal (Adviser, 2002). Thus, eco-labelling plans will positively affect the amount of demand for environmentally preferred products. Consequently, the resource distribution will be changed in order to protect the environment. In fact, from a policy perspective, consumers are educated about the advantages of the environmental products, its manufacture process, use and disposal, which are the main purposes of eco-labels. This consumer awareness scheme will probably lead to a change in their purchasing behaviour and ultimately, reduce negative impacts. Further, the environmental objectives might be advanced by eco-labelling policies with no need for the control methods and production site commands which are inconsistent with the global environmental objectives and international trade agreements. As mentioned previously, Eco-labelling programmes are voluntary in essence. The labelled products should satisfy the environmental criteria in order to be similar to standards. However, there is a difference between Eco-labelling programmes and environmental standards i.e. whether the measure is voluntary or compulsory. The voluntary Eco-labelling programmes are measures that allow the firms to decide whether they attach eco-labels on their products or not. In the compulsory environmental standards the firms are not allowed to sell their products without meeting those standards.

International Organization for Standardization (ISO) has classified the existing environmental labels into three categories Type I, II and III according to specified preferential principles and procedures as follows. (UNOPS, 2009):

**Type I** Eco-labels (ISO 14024:1999) - ”eco-labels” are strictly independent and reliable labels that consider the life-cycle impact of products and services, even if this term is commonly used in a broad and not always correct way.

**Type II** Self-declared environmental claims (ISO 14021:1999) - the labels under this group are those developed by companies themselves and not awarded by an independent authority and thus do not have all the normal characteristics of environmental labels. It can be targeted at one of the company products in the form of a declaration, a logo, a commercial, etc.

**Type III** Environmental impact labels (ISO 14025:2006); Type III labels are those which include qualified product information based on life cycle impacts. The environmental information is compiled by the respective companies based on environmental parameters fixed by a qualified third party and is independently verified.

As of July 2004, international ISO standards have been developed and implemented for Type I and Type II labelling, while work continues on the development of a standard relating to Type III. Consequently, the ISO definition for Type III should be considered a ”draft working definition” that could be revised.
Eco-labels have emerged as a main tool for green marketing (Mansvelt, 2011), which means eco-labels are part of green marketing. Along with the increase in green marketing there has been an escalation in the development of eco-labels (Iannuzzi, 2011). Green marketing is a recent and emerging system of labeling and advertising for products and services that are promoted by claims of either a reduction or elimination of negative ecological impact. Eco-labelling is a voluntary initiative to enhance environmental performance during the production or consumption of products and services.

In the past decade, Germany introduced the first Eco label in the world called Blue Angel in 1978. Eco-labelling programmes have been widely popular around the world. The Blue Angel was created on the initiative of the Federal Minister of the Interior in 1978 and approved by the Ministers of the Environment of the federal government and the federal states. It was first introduced to guide consumers who wished to purchase the sound products which are environmentally produced and used. Overall, Blue Angel label specifies which one of the four different protection goals i.e. health, climate, water, and resources are focused in a product or service. Besides, the Blue Angel Eco-labelling scheme was formed in order to give the consumers reliable and easy to access information about the products which are environmentally preferable. In other words, the Blue Angel label evidences to what extent the production is eco-friendly and preserves resources. Considering the fact that the Blue Angel promotes the concerns of both consumer and environmental protection, it is granted to the services or products which are especially beneficial for the environment and also to those which met high standards of occupational health and safety and fitness for use. Nowadays, about 11,700 services and products in approximately 120 product categories carry the Blue Angel eco-label (Blue Angel, 2012). Blue Angel eco-label has been applied on the products of chain lubricants for motor saws, cardboard, copying paper, floor coverings, files and maps, printing devices, recycled paper, recycled board and sanitary paper.

Today, similar programmes have been introduced by more than 26 countries/regions, including developing countries such as India, Brazil, and Zimbabwe. A non-profit association of eco-labelling organizations called the Global Eco-labelling Network (GEN) was established in 1994 to promote eco-label labelling. Similarly, the aim of the association is to improve, promote, and develop the eco-labelling of products and services. This highlights the effectiveness of eco-labelling measure to protect the environment.

Consumers’ interests in learning about the products environmental characteristics have increased. This need has been responded by assigning eco-labels on products to highlight the item’s environmental attributes and also by introducing redesigned or new ”green” products (Noblet et al., 2009). The increasing use of eco-labelled products indicates that eco-labelling tends to be known as an effective way of making change in consumer purchasing behaviour. Today, many products with eco-labels which are advanced by environmentally friendly process and production methods (PPMs) have come into the market.
In the late 1980s, Fairtrade Labelling was founded in the Netherlands. Later, in 1988, the first Fairtrade consumer guarantee was labelled on coffee sourced from Mexico by the Max Havelaar Foundation (Fairtrade, 2011). Fairtrade eco-label is an ethical trade system that puts people first. Fairtrade offers farmers and workers in developing countries a better deal, and the opportunity to improve their lives and invest in their future. Fairtrade gives consumers the opportunity to help reduce poverty and instigate change through everyday shopping. It should be noted that Fairtrade which is based on a partnership between producers and consumers is known as an alternative approach for conventional trading. It is worth mentioning that Fairtrade standards cover food products ranging from tea and coffee to fresh fruits and nuts. Other standards are also available for non-food products such as flowers and plants, sports balls and seed cotton (refer to Figure 1.4).

"Dolphin safe tuna” labelling is another example of response to many concerns about tuna-fishing patterns in which fishermen surrounded dolphins by their nets, entrapping them and finally killing them. The notable decrease in dolphin population led to the Marine Mammal Protection Act of 1972 in US which imposed many limitations for dolphin hunting by local fishing boats (not foreign boats). However, dolphin killing still continued in the late 1980s which made some consumer’s boycott buying tuna. Later, in 1990, the rate of buying tuna canning from those fishermen who did not hunt dolphins, labelling “dolphin-safe” on their products has increased. To prevent any kind of fraud, the government set a legal definition for ”dolphin-safe”. Nevertheless, to protect dolphins, in 1992, the United States made an international environmental agreement for dolphin protection with Mexico and other countries. Based on the agreement, they must avoid killing dolphins, be compatible to a dolphin mortality quota, and accept international observers on their boats (refer to Figure 1.4).

"Green palm sustainability” is another example of positive movements to protect the
environment. Green Palm is a ‘certificate-trading programme, which is designed to tackle the environmental and social problems created by the production of palm oil’ (Green Palm, 2012). The Roundtable on Sustainable Palm Oil (RSPO) is assigned as the leader of the global attempt for the palm oil production in an environmentally friendly manner. The aim of RSPO is to encourage the growth of sustainable palm oil through having cooperation with the supply chain and collaborate with the stakeholder. The RSPO, first, was known as an informal organization cooperating with Aarhus United UK Ltd (a leading producer of vegetable oils for food, confectionery, cosmetics, and healthcare industries), Golden Hope Plantations Berhad (an estate and plantations company in Malaysia), Migros (largest supermarket chain and largest employer), the Malaysian Palm Oil Association, Sainsbury, Unilever and the World Wide Fund for Nature (WWF) (Green Palm, 2012). In August 2003, the first roundtable was held in Kuala Lumpur. Today, almost 40 percent of the world’s palm oil producers are members of the RSPO. Further, NGOs, manufacturers, and retailers including Marks & Spencer, Asda, Tesco, The Rainforest Alliance and Wetlands International are also members of RSPO. Soon, RSPO had established its principles and criteria for Sustainable Palm Oil Production within two years. The protection of the rainforest was the main aim of RSPO foundation. It should be noted that if a palm oil grower or mill wished to be considered as producing RSPO-verified sustainable palm oil and to get the certificate, there are 39 criteria including the legality of operations; economic viability; best practice in operations and environmental and social responsibility to be met. Some of RSPO’s principles and criteria such as the right to use the land can be demonstrated and is not legally contested by local communities with demonstrable rights (Green Palm, 2012). Since November 2005, new plantings have not replaced primary forest or any area, which contains one or more High Conservation Values, the status of rare, threatened, or endangered species. Thus, high conservation value habitats that exist in the plantation or that could be affected by plantation or mill management will be identified and their conservation should be considered in management plans and operations (refer to Figure 1.4).

In this respect, “UTZ CERTIFIED” is another sample to protect the environment, which is a ‘worldwide certification programme that sets standards for responsible agricultural production and sourcing’ (UTZ certified, 2010). In Mayan language, UTZ means “good” and the primary aim is to supply coffee, cocoa and tea production, which are expected by brands and consumers with the assurance of environmental and social quality. In this respect, coffee, cocoa and tea product which carry UTZ CERTIFIED have been certainly produced according to the criteria of UTZ CERTIFIED Code of Conduct (refer to Figure 1.4).

The Body Shop is the first environmental friendly shop that opened in 1996 in Brighton. It is an agro based beauty shop which sells body and hair care products. They sustain the natural materials and ingredients with the wise use of the planet’s resources. The body shop has banned any animal testing in the cosmetic industry and they fund many campaigns to stop animal suffering. They ensure their products are not tested on animals by complying to the strict requirements of the Humane Cosmetic Standard which was
created by British Union of the Abolition of Vivisection. They produce products in a more environmental friendly way where they use natural resources such as strawberry, honey, grapefruits, tea tree oil, lemon tea tree and etc as their ingredients. Furthermore, to reduce the impact on the environment, the body shop introduced plastic bottles that were made from 100 percent recycled materials, replaced all the carrier or shopping bags with 100 percent recyclable paper bags and improved the energy efficiency by using new lighting system in the stores, warehouses and outlets to reduce the energy use. The Body Shop is currently in the process of converting car fleet to lower emission models and use the renewable energy to run offices, warehouses and stores around the world (refer to Figure 1.4).

1.6 The Role of Consumerism in Eco-Label in Malaysia

The increasing importance of sustainable concern such as food safety, environmental protection and animal welfare indicate that today’s consumers are not only concerned about health aspect of food products but they are also very careful about safety, environmentally friendly and animal welfare of the food products that they consume (Brom, 2000).

Agricultural activities are one of the main sources of pollutions. Agriculture can cause pollution to the environment far greater than the industries and municipalities. The underground water aquifers and surface water are contaminated because of the use of the fertilizers and pesticides. Animal waste is one of the numerous sources of pollution that can add up to huge issues for water quality and may cause human health issues (Copeland, 2010). Agricultural chemicals, eroded sediment and animal waste have fouled over 173,000 miles of the United States waterways. Therefore, agricultural farming is responsible for 70 percent of current water pollution in the US (New York Times, 1998).

Malaysia is one of the environmentally rich countries in the world but still it exhibits most of the environmental problems that are typical of many developing economies (Corporate Environmental Responsibility, 2011). So, environmental pollution problems in Malaysia have a long history. Environmental concern can include the over-logging of primary forest resulting in the loss of wildlife habitats, soil erosion and the displacement of indigenous communities; air and water pollution from industry and urban transportation, especially in the main centers of economic activity (Kuala Lumpur and the Klang Valley, Penang and Johor) and the dumping of hazardous waste (Perry and Singh, 2001).

Every year millions of people suffer and die due to diarrhea, food or water borne diseases. In the Asia Pacific region, over 700,000 people have died of food and waterborne diseases caused by microorganism, discussed at the FAO/WHO International Conference on Nutrition in 1992 (WHO, 2000). There were almost 3 million children in the developing countries die each year due to diarrhea and food borne diseases. Consumers generally prefer food products that are safe and of high quality
(Grunert, 2005). In the United States, (Mead, 1999) it is estimated that foodborne diseases cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year. For example, from 1982 to 2002, a total of 350 E.coli-O157 outbreaks were reported in 49 states of the United States.

Despite regulatory efforts to improve the safety of the U.S. food supply, foodborne E. coli O157 outbreaks remain common (Range, 2005). The U.S spinach producers experienced a complete loss of sales when the Food and Drug Administration advised consumers to stop eating fresh and bagged spinach in the wake of an outbreak in fall 2006 due to E. coli contamination. According to a Harris Interactive poll of 2,563 US adults, surveyed online between April 10 and 16, 2007, consumers are concerned about the incidences of recalls among manufacturers and suppliers of food and pet food products. More than four in five (86 percent) mentioned at least some concern, with three in 10 (29 percent) indicating that these recalls are a serious concern for them.

Essentially, the consumers surveyed indicated that they would at least temporarily stop purchases of the brand involved or the product involved in the recall (Grier, 2009). Food quality and safety are important in influencing consumer perceptions and decisions regarding food product choices.

Food safety is important to the food industry operators as consumers look for safe, high quality and wholesome food products. Consumers are gaining more information and knowledge about the pesticide, insecticide, fungicide and herbicide that are being used in food production. They are becoming more concerned about the health and safety aspects of the food products (McCann-Hiltz, 2004). Food safety remains to be one of the major issues confronting the food service industry in Malaysia (Euro monitor International, 2004). In Malaysia the contributing factors which directly relate to food safety concerns include the inadequate access to clean and safe water, increasing use of pesticides and other chemicals in agriculture, excessive food additives in food processing and lack of consumer education. Recently Malaysian consumers are looking for wholesomeness, tastiness and healthier foods to adapt to a healthier diet and lifestyle. Consumer consumption and interest in organic food products are increasing in Malaysia (Salleh et.al, 2010). Intention of consumers to buy organic foods has become more vital when they get more awareness of organic attributes (Golnaz et.al, 2011).

According to a Europe Union survey, consumer concerns for animal welfare is more compared to their concern for food safety, nutrition and environment while making purchasing decisions (De Passille and Rushen, 2005). Also in another study by European Commission (2013), they found that, EU consumers are concerned about animal welfare when they buy food. Animal welfare defined as a token to cover both the animal’s physical and mental well-being (FAWC, 2008). In 2008, an Austrian animal rights organization announced a boycott of Hungarian foie gras, arguing that force-feeding geese and ducks constitute animal cruelty (Gille, 2011). Animal welfare is important to humans for reasons of food security and nutrition (Good Practice Note, 2006). As studied by Verbeke and Viaenem (2000), meeting consumer concerns about
product safety and animal welfare are identified as key attention points. Consumer concerns are about the ethical issues of food safety as well as animal welfare. The place, process and the condition of animals being kept and slaughtered become very important to the consumers. Although health and food safety concerns are the main motives for organic food purchases, ethical concerns, specifically in relation to standards of animal welfare, play a significant and influential role in the decision to purchase organic food (Harper and Makatouni, 2002).

The SIRIM Eco-Labelling scheme was launched in 2004 to provide environmentally friendly Malaysian products with certification and a distinctive label to help promote them. Under the SIRIM Eco-Labelling scheme, a product is independently tested and verified against preset criteria such as Environmental Degradable, Non Toxic Plastic Packaging, Hazardous Metal Free Electrical and Electronic Equipment, Biodegradable Cleaning Agents and Recycled Paper (SIRIM Eco-labelling Scheme, 2009). Under SIRIM QAS International Eco-Labelling Scheme, a product will be independently tested and verified against preset criteria before the organization is allowed to use SIRIM QAS International’s Eco-Labelling mark on its product, packaging and promotional materials. These criteria levels are designed to encourage the production and use of products and services that are significantly less damaging to the environment than other products. After successfully undergoing the certification process, the licensee will be awarded a SIRIM Eco-Labelling Certificate which remains valid for two years. During this period, SIRIM auditors will conduct a surveillance audit to ensure on-going compliance. In addition, the product must be manufactured in accordance with industry quality and performance standards, while also complying with legal requirements.

The government of Malaysia has made serious commitments to strengthen continuing development. Therefore, the existence of the Ministry of Energy, Green Technology and Water (KeTTHA) in Malaysia, where progressive economical growth depends on careful protection of the environment, can be conducive to develop Malaysians environmental performance. In April 2009, the Prime Minister of Malaysia, Dato’ Sri Mohd Najib bin Tun Abdul Razak established Ministry of Energy, Green Technology and Water (KeTTHA). The main objectives of KETTHA are specifying policies, establishing legal framework and efficient rules, setting orientation for the energy industry, utilizing green technologies and the water industry in line with national development goals, and developing an effective management system and a useful monitoring mechanism (Ministry of Energy, Green Technology and Water, 2009). To sustain the ongoing growth of the economy, technology and eco-friendly products and services are developed by this ministry. Moreover, promoting the public knowledge about 'going green' together with encouraging and motivating them to perform green behaviour by consuming the resources efficiently are other responsibilities of this Ministry. 'Green possession’ policies for government agencies are also performed by the Ministry of Energy, Green Technology and Water. In addition, all newly settled infrastructures and buildings have to employ and apply green technological innovations; otherwise, they belong to local government units. These technological innovations include electronically powered lighting system, energy efficiency and water
walls powered by solar panels. One of the key drivers to enhance sustainable economic developments in Malaysia is developing green technology by the government.

![Eco-labels Image](source: Eco-label Index, 2013)

Malaysian farming’s Good Agricultural Practice Scheme (SALM) was introduced in 2002 by the DOA. SALM is the Malaysian certification programme to “recognize farms that adopt Good Agricultural Practices (GAP), operate in a sustainable and an environmentally friendly way, considering workers health and safety and yield products...
that are of quality and safe for consumption”. SALM programme aimed at making farmers practice and adopt GAP as a work culture or as a model on their farms. Further, the priority in the local market has been granted to the farms who have registered under SALM since their products enjoy both a degree of differentiation and the preferred quality (refer to Figure 1.4).

Rainforest Alliance certification is built on the three pillars of sustainability, environmental protection, social equity and economic viability. The Rainforest Alliance uses the power of markets to arrest the major drivers of deforestation and environmental destruction: timber extraction, agricultural expansion, cattle ranching and tourism. To earn the Rainforest Alliance Certified seal, farmers must meet a comprehensive set of social, environmental and economic standards that include criteria for water conservation and quality. Certified farms treat wastewater, conserve streamside habitat and restrict the use of harmful agrochemicals that can leach into local waterways, which all promote healthier streams (Rainforest Alliance, 2013). One example of available Rainforest Alliance products is Lipton tea bag in the Malaysian market (refer to Figure 1.4).

Organic system of food production and organic labels are usually considered as eco-labels” (FAO, 2000). Thus in order to distinguish farms in which crops are cultivated organically is based on the criteria and requirements signified in the Malaysia Organic Scheme (SOM) introduced by the Malaysian government. The scheme provides guidelines to produce organic foods, which the production, processing, labelling and marketing of plant are all based on the Malaysia Standard MS 1529:2001 (Department of Agriculture, 2007). This scheme is basically aimed to protect the organic producers against the misrepresentation of other agricultural products as being organic, to protect the consumers against the fraud in the market place and unreliable product claims, and to ensure that all stages of production, preparation, storage, transport and marketing have followed this standard. In this respect, consumers can be completely assured that the organic products are free from undesirable chemical residues and are truly safe (refer to Figure 1.4).

Malaysian Best has been established by Federal Agricultural Marketing Authority (FAMA) for the agricultural products that follow the best quality and highest safety based on standards set by the Authority. Malaysia’s Best is basically a “brand, which represents the seal of approval from the Ministry of Agriculture and Agro-Based-Industry for food safety and quality”. Thus, the brand serves as a quality assurance for domestic and foreign consumers on Malaysia’s agricultural products. Moreover, the image of the country’s agricultural products and the demand in global market has been enhanced by the brand seal and name. Eventually, farmers who participate in Malaysia’s Best programme should have the farm certificate scheme of Malaysia (SALM) (refer to Figure 1.4).

The Department of Veterinary Services (DVS) which was established to include services such as veterinary public health, the animal health, veterinary research, development
of the animal industry and genetic resources, human resource development and the enforcement of laws and regulations have introduced the veterinary. The objectives are to ensure that animal products for human consumption are healthy, clean, safe and suitable to be consumed, to facilitate the growth and development of the animal feed industry and to finally, ensure animals welfare and well-being (Department of Veterinary Services, 2011)(refer to Figure 1.4).

BAP (Best Aquaculture Practices) standard which is a voluntary certification programme for aquaculture facilities (which deals with environmental and social responsibility, animal welfare, food safety and traceability) has been developed by the Global Aquaculture Alliance (GAA). By BAP certification, aquaculture farms, hatcheries, processing plants and feed mills are able to assure consumers and everyone involved in the industry that their seafood is farmed and processed by the highest practices of the industry (Best Aquaculture Practices, 2012). The five basic elements of BAP certification audits are as follow: environment (sediment and water quality, fishmeal and fish oil conservation, control of escapes and use of Genetically Modified Organisms (GMOs), predator and wildlife interactions and storage and disposal of farm supplies) social responsibility (property rights and regulatory compliance, community relations, worker safety and employee relations) animal welfare (health and welfare and biosecurity and disease management) food safety (control of residues and contaminants, harvest and transport, Hazard Analysis Critical Control Points (HACCP)) and finally traceability (record-keeping requirement) (Best Aquaculture Practices, 2012) (refer to Figure 1.4).

There is another standard, which is called Marine Stewardship Council (MSC) standard (represented by a distinctive blue logo), suggesting that fish and fish products are prepared by well-managed and sustainable fisheries. The aim of fishery certification is to identify the fisheries in which high environmental and management standards are well met. Due to this standard, companies that catch, process, or buy the fish and other seafood will be able to achieve “Corporate Social Responsibility” aims (Moody International Malaysia, 2010). It is worth mentioning that the detailed nature of the assessment process and extensive consultation with stakeholders suggests that the process takes approximately 12 months; moreover, certification will remain valid for five years. Eventually, fishing associations, governments, fish processors/wholesalers or environmental organizations may all be clients for Seafood Industry Certification (refer to Figure 1.4).

Green campaign has been one of the most popular subjects among Malaysian in recent years. The primary aim of green campaign is to increase people’s awareness to protect the environment. Green campaign is popular not only in Malaysia, but also in many other countries. In this respect, there are many organizations that coordinate with green campaign, such as Environmental Protection Society Malaysia (EPSM), Malaysia Environment NGOs (MENGO) and Treat Every Environment Special Sdn. Bhd. (TRESS). Moreover, some other business companies such as Panasonic, TESCO, and Nippon Weather Paint Company support green campaign activities.
Besides other organizations, TESCO hypermarket had also designed an eco-friendly recycled bag to encourage consumers to use the recycled bag instead of the plastic bag. To do so, those consumers who use the recycle bags when shopping have received extra points for their member card. Overall, Tesco is known as the most environmentally friendly supermarket in many countries. Moreover, Tesco had been awarded for being the best big company that has incorporated environmental strategies through investing approximately 115m in energy-saving technology for its stores in the past two years. Still, Tesco is putting a step further and by working hard to produce zero carbon supermarket in the future (Angel, 2010).

The green campaign has also been supported by the Malaysia government. On 28 March 2009, in an encouraging movement, the government asked all Malaysians to switch off their lights from 8.00pm until 9.00pm. KL tower and 8TV were the companies that supported this programme.

Later, in 2011, the ‘No Plastic Bag Day’ campaign has begun on Saturdays in major grocery retailers. All the hypermarkets, supermarkets and petrol stations are to promote ‘No Plastic Bag Day’ and if consumers ask for the plastic bag they have to pay 20 cents for each plastic shopping bag.

1.7 Problem Statement

The government encourages people to go green through green campaign and environmental education mainly conducted by the Ministry of Energy, Green Technology and Water. They have attracted some of the companies in the food industry and marketer to produce more environmentally friendly or eco-labelled food products. Manufactures are intending to produce their products in an environmentally friendly way. Eco label food products are suitable for both environmental protection and consumer protection. Therefore such products and services are particularly beneficial for the environment while fulfilling high standards of health, safety and fitness for the users.

For Malaysian consumers, the availability of Eco labels on products in the market has become a subject of acute interest. This has resulted in their growing awareness of the role they play for the environmental protection through their purchasing of products. Since Malaysian people are concerned about the environment, animal welfare and food safety, their awareness regarding Eco labels has been steadily rising over the years. However, consumers often get confused with the new concept but this is mainly because it is only the beginning of eco-labelled food products in the market and there is still a lot more to familiarise with.

On the other hand because Eco-label is a new phenomenon in Malaysia, perhaps some people do not have any awareness about the Eco-label. There is still a lack of research in the areas of purchasing intention of Malaysian consumers when it comes to Eco-labelled food products. Therefore, it is still uncertain whether the Eco labelling is an effective
way of giving information regarding the food making process, or how influential this label is on the consumer's purchasing choice. Awareness of Eco-labelling plays a vital role in purchasing decision of consumers. In addition, the question arises whether only those who are conscious about the altruistic (saving the environment) or more egoistic (personal health) reasons are interested in this label. There are also problems like misbranding and false claims in food market which have become the important challenges to consumers.

The main perception of Eco labelling is founded on consumers concern for the environment that shows their willingness to pay higher prices for food products which are produced in an environmentally friendly way. As a rough rule of thumb about the production process which has an impact on the environment, consumers can ultimately decide to buy costly Eco label products or continue buying unlabelled products. It is important to find out the level of awareness, attitude and intention to purchase eco-labelled food products among consumers. Therefore in this situation efforts must be made to understand the extent people are aware and know about eco-label products and discover factors influencing consumer attitude to purchase eco-labelled food products.

Since Malaysia is taking steps towards going green and promotes green behaviour, purchasing eco-labelled food products might be an alternative way to perform green behaviour. Therefore, this study aims to explore factors influencing Malaysian consumers to purchase eco-labelled products. It is important to find out the level of awareness, attitude and intention to purchased eco-labeled food products among consumers and also find out to what extent people are aware and know about eco-label products. These factors can be social influence, such as family, friends, society or the availability of eco-labelled food products which give consumers awareness and intention to purchase them.

1.8 Objective of the Study

The main objective of the study is to investigate the awareness, and intention to purchase Eco labelled food products.

The specific objectives of the study are:

1. To determine the level of awareness toward the existence of Eco-labelled products.

2. To investigate the relationship between socio-demographic factors and consumer intention towards eco-labelled food products.

3. To determine the factors that influence consumer-purchasing intention based on eco-labelling.

4. To examine the extent of which socio-demographic and attitudinal characteristics will influence respondents intention to purchase food products with eco-label.
1.9 Significance of the Study

This research paper will concentrate on the purchasing intention of Malaysian consumers towards eco-labelled food products. It will benefit consumers, manufacturers and policy makers as shown in the following:

Consumers: consumer appeal is increased when label information extends beyond conventional information to consumer’s basic needs and responds to consumer lifestyle and philosophy. Eco-labelling should be better planned to have a positive impact on consumers and thereby supporting sales. The other side of the coin shows environment conscious consumers of Malaysia in a better position to uptake green products, by recognizing the eco-labelling and its importance. In this respect, knowing about the details on the labels of food products can help consumers with purchasing and there is evidence that, some consumers can be misled by label, as they have no knowledge about labels.

Manufacturers: this might encourage them to produce innovative products that are truly healthier and friendlier to the environment. The results of this study would benefit the companies in deciding their launching strategies for green products.

Policy makers: Malaysian government is always encouraging consumers and companies to go green through their various initiatives and campaigns. The legislator has to protect consumers from misleading or false claims and also take constructive steps if there is a need to improve public awareness and formulate policies and standards to measure the effectiveness of the eco-label on food products. The results of this study will help the Malaysian government and NGOs in implementing policies which are better focused on eco-labelling and improve and strengthen develop and promote eco-labelled foods towards going green.
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