Green Technology Awareness Among Lembaga Pertubuhan Peladang (LPP) Melaka Staff

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Abstract. The scope of this research is to survey the level of awareness on green technology among the staffs at Lembaga Pertubuhan Peladang Negeri (LPP) Melaka, purposely in the aspect of understanding, practice and the importance of green technology. This research is a descriptive survey research. The quantitative data is collected by using the Questionnaire of The Awareness on Green Technology Among the Staffs at Lembaga Pertubuhan Peladang Negeri (LPP) Melaka. The questionnaires has been distributed randomly and collected from 76 research samples. The reliability and validity of the questionnaires have been tested with the value of Cronbach Alpha of 0.89. The data that has been collected from the respondents is analyzed using SPSS software to obtain frequencies, percentage and mean score. In conclusion, research findings show that the level of awareness on green technology in the aspect of understanding, practice and importance is high among the LPP staffs. The high level of awareness will help to ease the initiatives that shall be conducted to realize green technology program especially in Malacca and in Malaysia.

Introduction

Malaysia is a country that is very concerned about the environment. In the context of Islam itself, Islam is asserts that men should not do any damage to the environment. Now, the phenomenon of global warming has sparked worldwide concern. Global warming has caused the extinction of flora and fauna, sea level rise due to polar glaciers, desert areas and some widening of natural disasters such as earthquakes, floods and drought. Therefore, various governmental and non-governmental organizations were first established such as World Wide Foundation (WWF) at the global level to

support efforts to give priority to environmental issues. While in Malaysia, the Ministry of Energy, Green Technology and Water (KeTTHA) was established on 9 April 2009 to replace the Ministry of Energy, Water and Communications. KeTTHA establishment is in line with the government's agenda to address environmental problems and promote economic growth.

The environment is also one of the indexes taken into account in the Quality of Life Report released by the Economic Planning Unit (EPU). In the period from 2006 to 2009 sub-index of environmental deterioration is caused by the haze in Southeast Asia. The introduction and implementation of policies for protecting the environment, such as National Environment Policy, National Green Technology Policy and National Climate Change Policy is the government's commitment towards sustainable development.

Green technology refers to the development and application of products, equipment and systems for protecting the environment and nature, and minimize or mitigate the negative effects of human activities. In short, green technology refers to products, equipment or systems that meet the following criteria, namely maximizing environment quality, lower greenhouse gas emissions or to zero and provides a healthier environment and a better life for all. In addition, green technology saves energy, natural resources and promoting sources of renewable energy.

Key sectors of green technology comprises of four main areas of energy, which is buildings, water and waste management, and transportation. These sectors are emphasized as Malaysia is facing a challenge in ensuring sustainable development and sustainable. Among the challenges of environmental management, it includes urban air quality, water quality, deforestation, domestic waste and hazardous waste. This role should be played by all players in the industry, operators and manufacturers. The economy can also be enhanced through the use of social technology and to improve the quality of life for all people.

Melaka is a state of green technology. Various programs and projects that have been implemented include establishing Majlis Teknologi Hijau Negara & Perubahan Iklim (MTHPI), eco-labeling, Municipal Green, Green Technology Studies and Smart Cooperation. Eco-labeling is a joint venture of SIRIM Berhad as a program developer together with Malaysian Green Technology Corporation (GreenTech Malaysia), which has been given the responsibility to implement the Green Procurement Pilot Program and Eco Labelling. The program began in August 2010. The Eco Labelling is a voluntary scheme, established to encourage the business sector to produce products that are environmentally friendly as well as to help consumers to identify products that are environmentally friendly. Green Township is one of the initiatives of the Ministry in incorporating all major sectors in order to make it as a pilot project Municipal Green will be the model for the development of other cities in Malaysia. Smart collaboration is one of the strategies in strengthening

the National Green Technology agenda. This intelligent cooperation includes cooperation in the international, national, state and local level.

Problem Statement

The study of green technology that have been carried out by Fazli Mohamad Sabri & Teoh Yong Yong at Universiti Putra Malaysia (UPM) said that early education at the primary level is seen as one method to cultivate values, positive attitudes and practices regarding environmental responsibility. The study found that users have a moderate level of green practices. This is due to the level of earnings information only focused on printed media and electronic media. Users are not willing to pay more for green products. Therefore, more practices of green technology should be enhanced in line with the environmental campaigns that have been carried out by the government. Other campaigns that can be recommended is as 3R practices, which are reduce, reuse and recycle and the application of knowledge about environmentally friendly products.

According to Anny Kiat Lim Lian (2011), there are also other studies carried out, indicating that the level of public awareness of green technology has not yet reached a satisfactory level. It is proven with many factories that emit harmful black smoke, increasing number of fuel consumption of motor vehicles, more nature is destroyed, dirty rivers and the increasing of carbon release into the air.

Since environmental problems are increasing, the need to create a generation who are aware of the responsibility in preserving the environment is very important. Melaka state government has set up a Majlis Teknologi Hijau Malaysia Melaka on 16 May 2011 in order to realize the vision of Melaka Green Technology City by 2020, chaired by the Chief Minister of Malacca. To realize this goal, all state government departments, agencies and statutory bodies have been instructed to set up a committee of green technology in their organization level. This committee will be responsible for ensuring the development and application of green technology and green practices into every organization's working culture.

Lembaga Pertubuhan Peladang Negeri Melaka (LPP) is directly involved in the successful implementation of green technology as LPP heavily involved in the agricultural sector. Thus, many programs are focused on agricultural activities. There are a number of action that have been taken to achieve the vision of Green Technology State in 2020. Among them are the *Kempen Tanaman Dapur* and organic farming practices. Campaigns are carried out to create awareness on safe food that is planted by themselves. Participants will be given a basic course to grow vegetables at home. In collaboration with Jabatan Pertanian, participants will be provided with a set of free tools and

they are facilitating to apply what they have learned. Participants who involved came from the various groups, including school children and villagers. Besides saving kitchen expenses, it also helps reduce the use of packaging materials when shopping for groceries and help preserve the environment. The practice of organic agriculture is one of the methods in agriculture carried out without the use of chemicals. The resulting crop is free from chemicals like pesticides and hormones. The material used came from residual organic waste generated by the kitchen. Using the guidelines given, the rest will serve as organic pesticides and organic fertilizers. This practice helps reduce residual household waste and help the state save on the cost of solid waste management.

Various campaigns and programs have been implemented to realize the understanding, practice and importance of green technology at various levels. Implementation also involved various scope and methods to help enhancing awareness. However, it is in need of committed organizations and individuals to produce the desired results. The importance of green technology is absolutely irrefutable; it was created to maintain environmental sustainability. This is supported by various programs and initiatives that have been articulated by the government or private parties. However, does the public have a clear understanding of green technologies?

Objectives

The objectives of the study are to;
i.   identify the level of understanding of green technology among the staff in Lembaga Pertubuhan Peladang (LPP) Melaka.
ii.   determine the level of practice of green technology among the staff in Lembaga Pertubuhan Peladang (LPP) Melaka.
iii.   identify the importance of green technology among the staff in Lembaga Pertubuhan Peladang (LPP) Melaka.

Methodology

Research design

This study is a descriptive study using a survey questionnaire as a tool to gather information. According to Mohd Majid Konting (2005), survey research is often carried out in educational research. In addition, a survey study involving both qualitative and quantitative data collection. Since it is a method of data acquisition in a certain time only, through a review of the situation of

the time, they can explain the relationship continued the pattern at one time level (Mohamad Najib, 1999). According to Noraini Kaprawi in Noraini Idris (2010), the survey is useful when researchers want to collect data relating to the phenomenon that is not observed directly. It is also often used to determine the attitudes, beliefs, values demographics, behaviors, thoughts, habits, desires ideas and other information pertaining to a group of people .

Data Collection Method

Data were collected through primary data. It is raw data obtained through the questionnaire that will be distributed by the researcher. Questionnaires are usually formed based on the objectives of the study for the purpose of collecting data.

Population and Sample

The population consisted of all staff Lembaga Pertubuhan Peladang (LPP) Melaka, a total of 92 people. However, 76 of the staff has been randomly selected as samples using simple random sampling. By using this method, each member of the population has an equal chance of being selected as the sample. This is also a great way to get a sample from a large population size. Simple random sampling is an advantage if a large sample, the sample will be representative of the population. (Noraini Idris , 2010).

Conclusion and Recommendation

Analysis of Understanding Variable

The division consists of eight questions related to the understanding of the staff at LPP Melaka towards green technology. The data were analyzed using mean values. Table 1 shows that the mean score for the first research question about the level of understanding is 4.10. This gives the interpretation that the respondents have placed the level of awareness of green technology in terms of understanding to be ranked high. In addition, the findings also show that the majority of LPP Melaka staff has a high level of understanding on the implementation of green technology. This is because the LPP staff was directly involved in the campaign of green technology through greening program, organic farming and urban agriculture. In addition, the state also played the role in

increasing the understanding of the people of Melaka on the implementation of green technology through the day without plastic campaign and has made a determination that the year 2020 Melaka will be declared as Green Technology State status.

Table 1 : Mean Analysis For Understanding Variable

NO.	ITEM	FREQUENCY AND PERCENTAGE					MEAN SCORE	INTER-PRETATION
		SDA	DA	N	A	SA		
1.	Green technology is a technology based on nature.	-	1	4	26	45	4.51	High
		0%	1.3%	5.3%	34.2%	59.2%		
2.	Recycling is one of the elements in green technologies.	0	0	5	35	35	4.39	High
		0%	0%	6.6%	47.4%	46.1%		
3.	Green technology implemented to reduce the impact of environmental pollution.	0	0	4	27	45	4.54	High
		0%	0%	5.3%	35.5%	59.2%		
4.	Green technology is a technology that is environmentally friendly.	0	0	4	23	49	4.59	High
		0%	0%	5.3%	30.3%	64.5%		
5.	The use of green technologies can boost the economic development of a country.	0	0	14	30	32	4.24	High
		0%	0%	18.4%	39.5%	42.1%		
6.	The success of green technologies depends on the government.	16	20	22	13	5	2.62	Average
		21.1%	26.3%	28.9%	17.1%	6.6%		
7.	The government has always encouraged the development of green technology.	0	0	16	38	22	4.08	High
		0%	0%	21.1%	50.0%	28.9%		
8.	Green building is one of the green technology sectors.	0	3	26	28	19	3.83	High
		0%	3.9%	34.2%	36.8%	25.0%		
Percentage, Mean Score and Overall Interpretation		**2.6%**	**3.9%**	**15.6%**	**36.4%**	**41.6%**	**4.10**	High

N = 92   S = 76

LIKERT SCALE

SDA = Stongly Disagree,   DA = Disagree,   N = Not certain,   A= Agree,   SA= Strongly Agree

Analysis of Practice Variable

In this section there are eight items that has been developed which is linked to aspects of green technology practices among the staff at LPP Melaka. The data were analyzed using mean and mean score. The result is shown in Table 2.

Table 2: Analysis of Practice Variable Mean

NO.	ITEM	FREQUENCY AND PERCENTAGE					MEAN SCORE	INTER-PRETATION
		SDA	DA	N	A	SA		
1.	I am carrying a recycling bag when I go shopping at the supermarket	1	9	11	38	17	3.80	Average
		1.3%	11.8%	14.5%	50.0%	22.4%		
2.	I will be switching off the lights when I leave the office.	0	-	6	38	32	4.34	High
		0%	-	7.9%	50.0%	42.1%		
3.	I always bring my own food containers for food packaging	0	11	25	27	13	3.55	Average
		0%	14.5%	32.9%	35.5%	17.1%		
4.	I recycle unused paper in the office.	0	6	11	45	14	3.88	High
		0%	7.9%	14.5%	59.2%	18.4%		
5.	I separate the materials which can be recycled by type of material (plastic, paper and glass).	0	4	17	42	13	3.84	High
		0%	5.3%	22.4%	55.3%	17.1%		
6.	I prefer to choose and buy green products (eco label).	0	3	26	37	10	3.71	Average
		0%	3.9%	34.2%	48.7%	13.2%		
7.	I prefer to choose and buy refills (refill).	0	7	15	27	27	3.97	High
		0%	9.2%	19.7%	35.5%	35.5%		
8.	Setting air conditioning temperature at 24ºC is a practice that supports green technology.	0	6	23	30	17	3.76	Average
		0%	7.9%	30.3%	39.5%	22.4%		
Percentage, Mean Score and Overall Interpretation		**0.2%**	**7.6%**	**22.1%**	**46.7%**	**23.5%**	**3.90**	**High**

N = 92   S = 76

LIKERT SCALE

SDA = Stongly Disagree,   DA = Disagree,   N = Not certain,   A= Agree,   SA= Strongly Agree

For the second research question, the overall mean score obtained was 3.90. This situation occurs because they are often exposed to the importance and benefits of green technology practices in the workplace so that it becomes an inducement to them to continue to practice in daily life. In addition, the role of state government in encouraging the implementation of green technology campaign in each respective government departments plays a significant role.

Analysis of Interest Variable

For the variable of interest, eight items has been developed, which is related to the third objective of the importance of green technology among LPP Melaka staff. The data were analyzed using mean nd mean score. The result is shown in Table 3.

Table 3 : Analysis of Interest Variable Mean

NO.	ITEM	FREQUENCY AND PERCENTAGE					MEAN SCORE	INTER-PRETATION
		SDA	DA	N	A	SA		
1.	Green technology is vital to conserve nature.	0	0	5	29	42	4.49	High
		0%	0%	6.6%	38.2%	55.3%		
2.	Green technology should be applied starting from the school level.	0	0	6	30	40	4.45	High
		0%	0%	7.9%	39.5%	52.6%		
3.	The industry plays a very important role in the success of green technology.	0	0	6	33	37	4.41	High
		0%	0%	7.9%	43.4%	48.7%		
4.	Green technology is able to generate added value for the progress and prosperity of the country.	0	0	12	28	36	4.32	High
		0%	0%	15.8%	36.8%	47.4%		
5.	Green technology can trigger the production of products and more innovative.	0	0	11	31	34	4.30	High
		0%	0%	14.5%	40.8%	44.7%		
6.	Green technology encourages the use of green technology renewable sources (renewable energy).	0	1	11	38	26	4.17	High
		0%	1.3%	14.5%	50.0%	34.2%		
7.	Green technology exists to fix the problem of climate change in order not to be a threat to future generations.	0	0	6	30	40	4.45	High
		0%	0%	7.9%	39.5%	52.6%		
8.	Green technology can contribute to energy conservation.	0	0	3	41	32	4.38	High
		0%	0%	3.9%	53.9%	42.1%		
Percentage, Mean Score and Overall Interpretation		**0%**	**0.2%**	**9.9%**	**42.8%**	**47.2%**	**4.40**	**High**

N = 92   S = 76

LIKERT SCALE

SDA = Stongly Disagree,   DA = Disagree,   N = Not certain,   A= Agree,   SA= Strongly Agree

Overall, respondents indicated that the level of awareness of green technology is at the high level with overall of 4.40. The high score is the result from the program carried out by the state government and the department itself to ensure green technology campaign will be implemented continuously. In addition, according to the Sunday Times (2011), the awareness of green technology is important in today's era. As presented by the Chairman of the NCC, Prof. Emeritus Datuk Dr. Zakri Abdul Hamid at the National Council of Professors (MPN), the level of awareness and knowledge among Malaysians on the importance of green technology in the present and the future is still at a low level. This problem refers to the level of limited education provided to the people of Malaysia. Among the methods that can be done is to educate is through communication, training and research to ensure that the awareness will be widespread.

References

[1] Anny Lim Kiat Lian (2011). "Teknologi Hijau:Semua Pihak Perlu Berperanan". Universiti Kebangsaan Malaysia, Bangi

[2] Jamilah Hj Ahmad, Hasrina Mustafa, Hamidah Abd Hamid dan Juliana Abdul Wahab, (2011). "Pengetahuan, sikap dan Amalan Masyarakat Malaysia terhadap Isu Alam Sekitar". Pusat Pengajian Komunikasi, Universiti Sains Malaysia. Tesis PhD

[3] Khursiah Binti Ahmad Zainudin (2013). "Kajian terhadap kesan Penerimaan Pembudayaan Teknologi Hijau Dalam Keusahawanan dikalangan Belia di sekitar Lembah Klang". Universiti Utara Malaysia. Tesis Master

[4] Mohd Majid Konting, (2005)." *Kaedah Penyelidikan Pendidikan"*. Kuala Lumpur: Dewan Bahasa dan Pustaka.

[5] Mohamad Fazli Sabri & Teoh Yong Yong (2006). "Tahap Keperihatinan Alam Sekitar Dan Amalan Penggunaan Hijau Pengguna di Petaling Jaya Selangor". Universiti Putra Malaysia.

[6] Noraini Idris (2010). "Penyelidikan dalam Pendidikan". Kuala Lumpur: Mc Graw-Hill (M) Sdn. Bhd.

[7] Siti Rohani Johar (2013). "Kesedaran Teknologi Hijau Dikalangan Warga Universiti Tun Hussien Onn". Tesis Ijazah.

[8] Siti Nor Syazwani Saibani, Mohd Safarin Nordin dan Muhammad Sukri Saud, (2012). "Integrasi Teknologi Hijau Dalam Kurikulum Pendidikan Teknik Dan Vokasional". Universiti Teknologi Malaysia.Tesis Ijazah