

**FACTORS THAT AFFECT THE GREEN TECHNOLOGY AWARENESS  
IN MELAKA**

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**FACTORS THAT AFFECT THE GREEN TECHNOLOGY  
AWARENESS IN MELAKA**

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This report submitted in partial fulfilment of the requirement for the award Bachelor  
of Technology Management (Innovation Technology)

Faculty of Technology Management and Technopreneurship  
Universiti Teknikal Malaysia Melaka

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## DECLARATION

This declaration is to clarify that all of the submitted contents of this project are original in its information, table, paragraph, figure, excluding those, which have been admitted specifically in the references. All the hard work that had been done in order to complete this research is from my own creativity and also idea. All contents of this project have been submitted as a part of partial fulfilment of Bachelor of Technology my own original writing excluded for the references that have been used including the document and summaries that have been acknowledge.

Signature :

Name : NORNAZIRAH BINTI NAZIR ALI

Date :

## DEDICATION

I am very thankful to Allah Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. Only because of Allah willing I had done this research through all the challenge. I dedicate my work to my parents, Nazir Ali bin Shangkotti and Noor Begam binti Mohd Said, who has encouraged and motivated me all the way in order to completed this research. Big appreciation to my beloved supervisor and panel who had guided myself throughout the research and my course-mate that assisted me in order to accomplish my research as well. Thank you. My love for you all can never be quantified. May Allah bless all of you.

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## ABSTRACT

Nowadays, in this era of globalization, the world keeps on developing day by day. Our earth is now becoming more polluted than before due to the environmental effects caused by human being. The greed of human being had caused them to ignore the consequences of their decision and how far it would affect the environment. In accordance with this, Melaka has decided to start going green by practicing Green Technology that will not only improve the quality of environment but as well as the quality of life for the citizen in Melaka. The objective of this research is to find out factors that affect the awareness towards Green Technology. This research was held in Melaka as the respondents all from Melaka citizens. Based on the conceptual framework, the independent variables are knowledge, attitude towards environment, and government policy and regulation. Meanwhile for the dependent variables is awareness towards Green Technology. The data was gained from questionnaire session, journals, articles which had been analysed by using the SPSS system. As the results of this research, it stated that Government Policy and Regulation is the most effective factors towards awareness of Green Technology. The result also showed that mostly people in Melaka already aware about the Green Technology, they just lack in practicing the green practices. Therefore, hopefully Melaka citizens become more alert and aware towards the Green Technology which will lead to aspiration of Melaka to achieve greatly as the title of Melaka Green City on 2020.

**Key words: Green Technology, awareness.**

## ABSTRAK

Kebelakangan ini, pada zaman globalisasi, semakin hari dunia semakin berubah. Keadaan Bumi semakin teruk apabila semakin tercemar berbanding dahulu kerana sifat manusia yang mementingkan diri sendiri. Disebabkan oleh ketamakan manusia, mereka tidak mengendahkan akibat yang bakal berlaku daripada keputusan yang mereka lakukan dan sejauh mana hal ini boleh memberikan kesan terhadap alam sekitar. Hal ini telah membuatkan Melaka untuk menuju ke arah teknologi hijau dimana hal ini bukan sahaja dapat meningkatkan kualiti alam sekitar, pada masa yang sama meningkatkan kualiti kehidupan terutamanya bagi penduduk di Melaka. Objektif utama dalam penyelidikan ini ialah untuk mencari faktor yang mempengaruhi kesedaran terhadap teknologi hijau. Penyelidikan ini dijalankan di Melaka dan responden juga terdiri daripada penduduk di Melaka. Berdasarkan kerangka konseptual, pembolehubah bebas termasuklah pengetahuan, sikap terhadap alam sekitar dan juga dasar dan polisi kerajaan. Manakala untuk pembolehubah bergantung ialah kesedaran terhadap teknologi hijau. Data yang dikumpulkan adalah melalui borang soal selidik, jurnal, artikel yang telah dianalisis menggunakan sistem SPSS. Hasil mendapati bahawa faktor dasar dan polisi kerajaan adalah faktor yang paling berkesan dalam mempengaruhi kesedaran terhadap teknologi hijau. Hasil dapatan kajian juga menunjukkan bahawa kebanyakannya orang Melaka telah sedar tentang kewujudan teknologi hijau, mereka cuma kurang mengamalkan amalan hijau. Oleh itu, penyelidik berharap agar rakyat Melaka lebih peka dan sedar tentang kewujudan teknologi hijau dimana akan mengendong aspirasi menuju ke arah Melaka Negeri Bandar Teknologi Hijau pada tahun 2020.

**Kata kunci: Teknologi hijau, kesedaran.**



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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.0 Introduction**

The first chapter is about the introduction of the study. Introduction is one of the most important parts because it will help in determining the success of a research. This is usually done through the iron triangle method which involves the Topic, Research Questions and Research Objectives. In this chapter 1, the introduction of research must include problem statement, background of study, research question, research objectives, scope, implication of research and significant of research.

#### **1.1 Background of the Study**

Nowadays, in this era of globalization, the world keeps on developing day by day. Our earth is now becoming more polluted than before due to the environmental effects caused by human being. The greed of human being had caused them to ignore the consequences of their decision and how far it would affect the environment. In accordance with this, Melaka has decided to start going green by practicing Green Technology that will not only improve the quality of environment but as well as the quality of life for the citizen in Melaka. It was stated in 2014 (Bank, 2014), Melaka was one of the first city that are involved in Urban Environmental Accords (UEA) in Malaysia. Urban Environmental Accords (UEA) can be described as a series of



approaches recognized by the United Nations (UN) which support a city towards the world of green technology initiatives as to reduce the effects of climate change by human (Green and Corporation, 2016). Melaka is one of the city that had chosen to go further in Green Technology World. As the saying goes, “An apple a day, keeps the doctor away”, we can bring it up same like our sight regarding to the environmental issues. If the citizen of Melaka could start to be more alert from now about their city, then a more positive outcomes could be seen in the future.

Basically, what does it meant by Green Technology? Green technology is a concept introduced through the term “green”, one of the hot topics in this century, especially in the context of development, innovation and technology. Green technology refers to the application of product, equipment, systems in protecting the environment and the nature in order to decrease the negative effect caused by human being (Ministry of Energy, 2017). Green technology does not only involves technological feasibility, but it also includes economical payoff ability which represent the unity of economic, environmental and social benefits (Wu and Cho, 2018). “Green technology applied the uses of environmental sciences to preserve the environment and well utilise the natural resources in order to minimize and reduce the negative impacts due to human (McCranie et al., 2011).

Green technology is the latest and right approach in dealing with the environmental problems and economic growths. It is also one of the main agenda that gives priority to world environmental issues, particularly in the phenomenon of climate change. Consequently, world population should be responsible by playing their role in making the world a safer and more pleasant place to live in. As we all know, Melaka is one of the Green Technology city that had been practicing the concept of green technology since 2010, particularly about 8 years ago and will soon achieve their goals in becoming one of the green city in 2020.

In addition, a green city can be defined as one of a city that are flexible, inclusive, manages their natural resources nicely and encourages low carbon growth to survive on competitive and boost the liveability for all citizens (Bank, 2014). In conformity of another journal,(Azmi et al., 2017) it could be said that the city is more liveable for their residents by going through the green city approach which could be

seen through the implementation of identical emphasis of environment, equity, economic competitiveness and the moving- away from business as usual practices in order to reach a balanced growth. Moving towards a green city, Melaka will be able to increase the climate resilience, improves natural resources efficiency and management, and upgrades the infrastructure feasibility for a lower carbon growth.(Chew, Hamid and Sukri, 2017).

On the authority of another publication (Green and Corporation, 2016), it was stated that in order to increase the climate resilience Melaka will have to increase the protection of communities from the risks of flood, perform an assess construction standards for storm events and reduces the heat island effect. Besides, in order to improve natural resource efficiency and management, minimization on urban land pollution and enhancement of the ambient air quality need to be done. The implementation of Melaka towards Green City concept will be beneficial in helping the city in achieving urban advantages while maintaining a great quality of the environment. Urban environment can be improvise via green space which decreased the energy consumption by countering the warming effects of paved surfaces (Braubach, 2015). In short way, we could said that Melaka will be more technology-advance in the future with this green technology concept.

Every time “go green” is mentioned, people will be remembered of Melaka as till today, Melaka is the only state that had been implementing green technology continuously compared to other states in Malaysia (Ministry of Energy, 2017). It has been previously claimed by the Ex-Chief Melaka Minister, Datuk Seri Idris Haron, “Melaka is one of the first state in Malaysia that has fully embraced green technology and has been bringing a positive results”. Datuk Seri Idris Haron was confident that Melaka is just a step away from achieving it vision in going 100% green in the future (Thestar.com.my, 2018). There were few strategies that had been implemented so far in order to improve the level of environmental quality through the practice of using energy efficiency equipment and by planting more trees around the city, and reducing the vehicles emission by promoting the use of public transportation. Sometimes with just a small changes, we could achieved big things in the future. This is why the Melaka Government have been executing their part in

implementing more strategies and plans in order to move forward as one of the Green City in 2020 (Convention et al., 2015)

Nowadays, a businessman had already recognized that a corporate program that involves the sustainability of green technology will always resulted in a profitable outcome and therefore, managers have been instructed to be faster in capitalize green technology matter. For instance, the CEO of Ford Motor Company, Bill Ford had said that, “ strong faith that in order to existence the right thing to do, maintaining the environment is a competitive advantage and have a major opportunity in business” (Vesilind, Heine and Hendry, 2006). Therefore, it could be said that even for a leader from such a big company, every time they had to make a decision in business that involves the future, they will care and be responsible in keeping the environment safe. The future of technology nowadays are also more towards green. The high energy costs and the global warming had mostly caused the businesses nowadays to realise the advantages of using green technology in diminishing their carbon footprint while having a positive effect on their business (Zainura, 2010). As for an entrepreneur, there is a change that need to be implemented in their mind set as this change could bring us more towards the environmental friendly work-practice and a more profitable business outcomes.

## **1.2 Research Problem**

Earth is one of the most beautiful planets of the solar system that supports life and hence is home to numerous species. Today, the environment is constantly changing because of human lifestyles. In this year of 2018, human life is becoming more dependable on technology, sometimes they do not even notice that their action can gives out a negative impact to the environment. According to the previous study (O.Boiral, 2012), what we have done today will affect the future. So, this shows that there will be a challenge in the future in order to maintain the sustainability of the environment. However, our planet is already suffering from various complicated conditions among which environmental issues are the most important things. The soil, air, water and almost everything are polluted and the environmental conditions

are getting worst due to the rise of population and irresponsible behaviour of humans. In Malaysia, people need to be aware of what types of environmental problems our planet is facing in order to prevent it from happening here because as we all know “prevent is better than cure”.

Firstly, the research problem is derived from the people who are lack in knowledge regarding to the awareness of green technology in Melaka. Based on the previous research, (Iravani, akbari and Zohoori, 2017), lack of knowledge are also one of the obstacles that need to be faced in order to increase the awareness of Green Technology. The people who are lacks in information regarding Green technology does not know on how to adopt or implement green practices in their life (Ramdhani et al., 2017). According to another findings (Sajama, 1987), knowledge can be describe as a “person’s range of information”, which also presents knowledge acquisition as an active process. Information can be determine as a data that has been taken (may be by the perceiver or by someone else) in a method that is logical to the perceiver. When people have knowledge about the green technology, they will be more aware towards it in their daily practicing. In the previous research, it was found that providing knowledge will also increase awareness and concern (attitude) as well as individuals’ characteristics to be more positive towards the environment (Rozelanyunus, Mohamad and Paper, 2015). Nowadays, knowledge has power, it controls the access for the opportunity and advancement in our daily life. Green technologies are one of the direct approaches from knowledge that are used in order to save earth and must be predetermined from now onwards if we want to ensure the livelihood of the earth for another two centuries. In accordance with (Kollmuss et.al, 2002), Green technologies are our way out of ruination, and when people are having more information about the green technology, it will help to increase the level of awareness amongst the citizen.

Besides that, we can see that the research problem for awareness of green technology is also the limited of information or concern regarding the government policy for green technology among the Melaka citizen. In previous research by (Kamarudin, et.al, 2011), it was stated that Malaysia are one of the earliest nation in the world that adopted a critical and serious concern approach the environmental by legislate the Environment Quality Act previously in 1974. As claimed by (Iravani,

akbari and Zohoori, 2017) the challenges of Green Technology are due to the limited information of people on all the initiatives and programs that have been implemented by the government. Through the imitative and support from the government, Malaysia is already becoming one of the developing green energy industries in today's world (Markom and Hassan, 2014). In addition, the introduction of National Green Technology Policy by the 6th Prime Minister on 24th July 2009 and ongoing numerous plans and incentives by government has been increasing the level of green technology implementation and usage in our nation (Tahir, Rajiani and Muslan, 2015). In the report of (Rezai et al., 2013), people will be more persuaded in accepting green technology and all of actions regarding the green technology due to the belief or reference from the people who are close to them such as family, relatives or friends. However, it is also important to educate the citizen by ensuring that they are aware of all the government strategies that have been implemented in many plans towards Green Technology. The aspiration of Melaka towards Green City status in 2020 only can be achieved if Melaka citizen are aware about the importance of Green Technology (Bank, 2014). The efforts include government led policies and projects, as well as private sector and citizen initiatives that seek to enhance the liveability in Melaka. According to (Green City Action Plan, 2014), Melaka had already taken the first step by preparing a complete approach towards the sustainability of green technology in Melaka. This was proven when Melaka had started to adopt the Green Technology Blueprint in 2011 which were then followed by a formalized vision and mission to transform Melaka into a Green Technology City State by 2020. The outcomes from numerous studies have concluded that the government rules and regulations have a big impact on both the citizens and state which also implies a significant positive outcomes on the awareness of Green practices (Ghobadian et al. 2001; Logamuthu & Zailani, 2010; Preuss, 2001; Zhu & Geng, 2001).

The application of green technology will bring more positives impact and benefits to the environment. This is because, the green technology products helps in producing energy in a greener way that will be able to make our planet safer in the future generations. In keeping with (Gary, 2017), programs such as "Save The Planet" is one of the worldwide awareness that have motivated more people from all over the world to apply go green practices in their lifestyle. Hopefully this research

will help to increase the level of awareness among Melaka citizen that will aspire Melaka to be one of the Green Technology City in the year of 2020.

### **1.3 Research Questions**

The focus of this research is to identify the factors that affect Melaka citizens on the awareness of green technology concept. In the context of this aim, three research questions are formulated:

RQ 1: What are the factors that affect the Green Technology awareness in Melaka?

RQ 2: What are the relationships between the factors towards awareness of green technology?

RQ 3: Which is the most significant factor that affect the Green Technology awareness in Melaka?

### **1.4 Research Objectives**

The aim of this study is to explore the awareness of green technology concept among the Melaka citizens. In order to achieve the above aim, the researcher come out with objective as shown:

RO 1: To identify the factors that affect the Green Technology awareness in Melaka.

RO 2: To study the relationships between the factors towards awareness of green technology.

RO3: To determine the most significant factor that affect the Green Technology awareness in Melaka?

## **1.5 Scope**

This research is about the awareness of Melaka citizens toward the green technology. Melaka is one of the green technology state, therefore, many strategies and policies had been implemented in order to ensure that Melaka will be one of the green city in 2020. The example of green technology features that were applied in Melaka is the Melaka Green City Action Plan (GCAP) which includes water management, energy efficiency and energy renewable, green transportation, zero waste, cultural and heritage tourism and lastly the urban forestry and agriculture. The scope of this research governs the investigation on the factors that influences awareness of green technology among Melaka citizens. The survey will be given out to 410 respondents around Melaka.

## **1.6 Limitation**

Throughout this study, there are several limitations that could be considered the challenges in the focus area. Firstly, the questionnaire approach towards the respondent of Melaka citizens in the city of Melaka. The questionnaire will be distributed to the respondents from all around Melaka. There is a possibility that the respondents could be or could not be familiar with concept of green technology. Therefore, through this questionnaire the possibility on the awareness of Melaka citizens towards green technology could be investigated.

Besides that, another limitation of the study is in the term of time horizon. This research will be cross sectional, which means that it involves the study on a specific phenomenon at a specific time. Moreover, this research will be conduct in the pre-implementation phase, where the respondent may know or does not know anything about the green technology. So, this research will study the awareness of Melaka citizen on green technology.

## 1.7 Significant of Research

First of all, this research is very important in order to fill in the academic requirement as one of the conditions to graduate. This research will make student to be more commitment in fulfil their final year projects. Besides that, this research is also important in order to know the level of awareness among the Melaka resident and their knowledge towards green city achievement by the year of 2020. The clarification on the daily activities of Melaka's citizen that involves green technology practices in their daily life that is only noticeable to certain people. Moreover, this research could also help in identifying any problems or issues that are related to the awareness of green technology in Melaka. This research is also an anticipation because it could increase the public knowledge and awareness on the current issues of green technology. On the other hand, this research could also assist the Melaka state government in realising their mission of transforming Melaka into a Green Technology City by 2020 through this survey on awareness of green technology.

In addition, this research can give a basic guide and information on the level of awareness towards the green technology concept in Melaka. Thus, helps in encouraging other researchers to continue to study or perform research related to the Green Technology. Based on the previous research of (Rezai et al., 2013), through various data, knowledge and information, consumers will be able to improve their understanding of the link between the environment and themselves. Moreover, this research could help us in discovering the main contributions and functions of a person who is involves in the implementation of Melaka as a Green Technology City in order to strengthen the citizen's awareness towards Green Technology. This research also could be a reference to students or researchers who will conduct a research on related topics in the future.