

‘Saya akui bahawa telah membaca
Karya ini dan pada pandangan saya karya ini
Adalah memadai dari segi skop dan kualiti untuk tujuan penganugerahan
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A STUDY OF ECO-INNOVATION IN SMALL AND MEDIUM ENTERPRISES
(SME) MANUFACTURING: A CASE OF SELANGOR

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Laporan ini dikemukakan sebagai memenuhi sebahagian daripada syarat
penganugerahan Ijazah Sarjana Muda Pengurusan Teknologi (Inovasi Teknologi)

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JUNE 2014

“Saya akui laporan ini adalah hasil kerja saya sendiri kecuali ringkasan dan petikan yang tiap-tiap satunya saya telah jelaskan sumbernya”

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DEDIKASI

Untuk ibu bapa, pensyarah dan kawan-kawan tersayang.

PENGHARGAAN

Penulis ingin merakamkan penghargaan ikhlas kepada penyelia, Puan Murzidah Binti Ahmad Murad atas bimbingan dan dorongan yang diberi sepanjang menjalani Projek Sarjana Mudaini.

Penghargaan juga ditujukan kepada semua yang terlibat samaada secara langsung atau tidak langsung membantu menjayakan projek penyelidikan ini. Semoga laporan ini akan menjadi sumber rujukan kepada pelajar lain kelak.

ABSTRAK

Sumber-sumber yang diperlukan untuk mengekalkan perkembangan berterusan ekonomi global semakin haus. Penilaian dan langkah-langkah telah diperkenalkan dalam usaha untuk mencapai pengeluaran yang mampan dan mengurangkan kesan gas rumah hijau (GHG). Masyarakat pada masa kini semakin menyedari kepentingan alam sekitar dan lebih memerhatikan issue mengenai alam sekitar serta akibat yang disebabkan oleh pencemaran alam sekitar. Oleh itu masyarakat kini tertarik dengan organisasi yang mempunyai kesedaran terhadap perlindungan alam sekitar dan melaksanakan eko-inovasi dalam operasi organisasi. Kajian ini adalah untuk mengkaji tahap kesedaran, kelebihan dan pelan masa depan pelaksanaan eko-inovasi di kalangan perusahaan kecil dan sederhana (PKS) dalam bidang pembuatan yang terletak di kawasan Selangor. Kajian ini menggunakan kaedah kualitatif di mana temuduga dilaksanakan untuk mengumpul data dan maklumat separa berstruktur yang kemudiannya dianalisis. Kajian ini telah mengesahkan bahawa pelaksanaan eko-inovasi di kalangan PKS dalam bidang pembuatan di Selangor telah membawa manfaat seperti peningkatan keuntungan ekonomi dan pada masa yang sama akan mengurangkan kesan buruk terhadap alam sekitar. Sebagai kesimpulan, pelaksanaan konsep eko-inovasi merupakan satu trend positif yang diamalkan oleh perusahaan kecil dan sederhana (PKS) pada masa yang akan datang untuk mengelakkan pencemaran terhadap alam sekitar.

ABSTRACT

The resources that are needed to maintain the continuous expansion of the global economy is being exhausted at a fast rate. Measures and steps have been introduced in the effort to achieve sustainable production and reduce greenhouse gas (GHG) emissions. The consumers in our time are more conscious of the environment and also the effects that cause the environment to degrade. Therefore consumers are even more impressed by organizations with a great sense of environmental awareness where eco-innovation is integrated not just in the company's corporate social responsibility but in its entire operations. This research is to investigate the level of awareness, advantages and future plan of implementation eco-innovation among small and medium size enterprises (SMEs) in the manufacturing field that located in Selangor area. The research utilizes the qualitative method in which semi-structured interview for data and information collection which then will be analyzed. This research has verified that the implementation of eco-innovation amongst the SMEs in the manufacturing field in Selangor have brought a lot benefit such as increased economic gain and at the same time lowered the impact they had towards the environment. As a conclusion, implementation the eco-innovation concept might be a positive trend for small and medium enterprises (SMEs) to pursuit in the future in order to avoid pollution towards the environment.

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

The awareness of the role that we play in sustaining the environment is seemingly increasing in all walks of life. This awareness has led to a significant increase in environmentally friendly products. The small and medium sized enterprises (SMEs) in the manufacturing field today are developing their products around the “Green Innovation” concept which produce more eco-friendly products, such as changing processes to reduce waste, more energy efficient warehousing or a multitude of other sustainability initiatives (Oxborrow & Brindley, 2013). Eco-innovations include enhanced processes, products, and organizational practices that reduce or avoid negative environmental impacts (Van &Cramer, 2002; Rennings et al., 2006; Beise-Zee & Rennings, 2005). As the competition in the global market grows, SMEs have to be innovative to be able to survive in the global market. SMEs have to be able to innovate, evolve and assimilate their products in order to contribute towards a sustainable development (Jamali et al., 2009; LePoutre & Heene, 2006; Luetkenhorst, 2004) which includes attenuating social grievance and environmental dilapidation. Through this concept and awareness, SMEs can not only contribute in reducing their carbon foot print but also reduce their resource consumption by improving and enhancing their energy usage and ultimately save cost (Klewitz et al., 2012).

1.2 Research Question

Nowadays, we have received a global alarm over energy security and the growing threat of climate change. Environmental sustainability stands as a vital component of most governments' national agenda. Environmental concerns are thus bound to play a more crucial role in shaping both domestic and international public policy. As we know that, small and medium-sized enterprises (SMEs) are an important part of the world economy but they are thought to be responsible for around 60% of all carbon dioxide emissions and 70% of all pollution (Parker et al., 2009).

Selangor is one of the main economic zones in Malaysia. It is the heartland of the nation, and the most developed in the country, it has the largest port and airport, its infrastructure and communications facilities are among the best in the region and others. According to Gross Domestic Product by State (2010), Selangor recorded the highest growth of 10.8 per cent (2009: -1.0 per cent) supported mainly by manufacturing sector which increased sturdily by 19.5 per cent as compared to -7.6 per cent in the previous year. Activities on the manufacture of motor vehicles & transport equipment and electrical & electronic industrial products led the robust performance in manufacturing sector.

The rapid transformation of Selangor into a wide urban region during the last decade of the twentieth century has contributed too many of the environmental issues, particularly air pollution. Thus, implement eco-innovation at Selangor has higher feasibility. Research question constructed as below:

1. What is the awareness level of SMEs in the manufacturing field in Selangor towards eco-innovation?
2. What are the advantages of implementing eco-innovation in manufacturing SME?
3. What are the future plans to implement eco-innovation?

1.3 Objective

The objectives are to examine the level of awareness of SME manufacturing companies within Selangor regarding eco-innovation. The research also investigates the advantages of implementing eco-innovation in SME manufacturing. Lastly this research will analyze the future plans that will be implemented in order to implementation eco-innovation.

1. To investigate the awareness level of SMEs in the manufacturing field in Selangor towards eco-innovation.
2. To identify the advantages of implementing eco-innovation in manufacturing SMEs.
3. To analyze the future plans to implement eco-innovation.

1.4 Scope

The scope for this research is to investigate the level of awareness of small and medium enterprise (SME) primarily in the manufacturing field in Selangor regarding eco-innovation by considering the advantages of implementationthe concept and future plans to implement it. Through the eco-innovation concept, companies will benefit in developing innovative products, services, processes, or management which can optimize the use of energy and resources, and promote business opportunities while preventing or minimizing the environmental impact.

The target research respondents will be from 3 of small and medium sized enterprises (SME) that is mainly in the manufacturing field and is located within Selangor area. The respondents from these SMEs will be those who manage and organize the manufacturing factories by implementing eco-innovation. Through this we can realize the level of awareness regarding the implementation of eco-innovation and the benefit to implementing the concept. This group of respondents will be providing the primary data for the level of awareness, advantages and future plan regarding implementation of eco-innovation.

1.5 Important of the Project

This research is a study regarding eco-innovation that is beneficial to small and medium sized Enterprises (SMEs) around Selangor area that is in the manufacturing field. This research is important because it classifies the awareness of eco-innovation within a SME in the manufacturing field. Besides that, this research also investigates the advantages of implementation eco-innovation to reduce on impact the SMEs have towards the environment. Furthermore, through this research of the level of awareness in eco-innovation, SMEs in the manufacturing field will identify how far they understand the concept of eco-innovation in organization practices and this will possibly encourage them to enhance their manufacturing processes to efficiently use energy and resources within their manufacturing process. This will indirectly reduce the impact that they have towards the environment as well. Besides that, this project also provides a short study towards the concept of eco-innovation by through the research question which is the future plans to implement eco-innovation. This will indirectly to give a guideline for SME in the manufacturing field to implement eco-innovation. The ultimate goal in this research will be to increase the level of awareness of eco-innovation in SMEs working within the manufacturing field. Besides that, the result of this research can also provide an eye opener to the government towards the trends of eco-innovation amongst the small and medium enterprise (SME) in the

manufacturing field particularly in Selangor and also encourage them by assisting them in certain ways to achieve the goal of increasing economic growth without degrading the environment.

1.6 Summary

Eco-innovation will help SMEs that are mainly dealing with manufacturing to enhance their overall performance and optimize their manufacturing process and at the same time increase their level of awareness in environmental management in order to develop a green business framework. According to Kemp and Andersen (2004) which states that eco-innovations may be technical, organisational or marketing innovations.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter will discuss in detail about eco-innovation in Small and Medium Enterprises (SME) that are in the manufacturing field. The enhancement processes, organizational practices and environmental impact will also be discussed further in this chapter. This chapter will firstly give a brief overview of Small and Medium Enterprises (SMEs) which will be at section 2.2. The sub-section 2.2.1 will show and explain the distribution statistics of SMEs in Malaysia. The subsequent section 2.3 will explain and give a brief overview of eco- innovation among SME. The sub-section 2.3.1 will then explain type of eco-innovation. Section 2.4 will then clarify the awareness of eco-innovation among SME. The 2.5 section will be explaining the implementation eco-innovation in SME. Section 2.6 will be explaining the advantages of implement eco-innovation. The section 2.7 will be show future plan to implement eco-innovation in small and medium enterprises (SME). Lastly, the theoretical framework is illustrated in section 2.8 and summary for chapter 2 will be show at section 2.9.

2.2 Overview of Small and Medium Enterprises (SMEs)

Small and medium enterprises (SMEs) have their own role that they play in the economy. According to the Organization for Economic Cooperation and Development (OECD, 2000, 2002), 95 percent of enterprises in a nation comprises of SMEs and are responsible for employing 60-70 percent of the workforce. Based on this statistics, we can clearly see that SMEs do contribute to the local economy. According to Asia-Pacific Economic Cooperation (APEC) also states that SMEs makes up to 90 percent of enterprises and employs between 32-84 percent of the workforce of each individual APEC economies (APEC Committee on Trade and Investment, 2004).

Small and medium enterprises (SME) contribute to the local and regional economic growth. SMEs act as the middle tier that contributes by providing job opportunities and also acts like a supplier of goods and services to larger organizations. SMEs are often defined by a number of factors and criteria such as the location, size, age, structure, organization, number of employees, sales volume, worth of assets, ownership through innovation and technology (Rahman, 2001)

According to Leachman et al. (2005), better manufacturing performance leads to competitiveness. In the manufacturing sector, SMEs are often specialist suppliers of specific components, parts, and sub-assemblies to larger companies because these items can be produced at a cheaper price compared to in-house production by larger companies. Lack of product quality supplied by them could adversely affect the competitive ability of the larger organizations.

The majority of SMEs have straightforward systems and procedures, which allows flexibility, immediate feedback, short decision-making chain, better understanding and quicker response to customer needs compared to larger organizations (Singh et al., 2008). In order for SMEs to have the right capabilities to stay afloat in the market, SMEs need to be continuously changing and adapting by enhancing their processes and keeping in touch with the technology advancements.

2.2.1 Statistics of SME in Malaysia

According to Malaysia's Department of Statistics (2005), SMEs contributed as much as 99% of the total business establishments in different sectors such as manufacturing, services, and agriculture. The table below illustrates the detailed breakdown of establishments and enterprises in Malaysia according to the size:

| Sector | Micro | Small | Medium | Large | Total |
|---------------|---------|---------|--------|-------|---------|
| Manufacturing | 21,516 | 15,796 | 2,061 | 1,420 | 40,793 |
| Services | 381,585 | 83,037 | 10,084 | 2,819 | 477,525 |
| Agriculture | 31,838 | 1,755 | 575 | 343 | 34,531 |
| TOTAL | 434,939 | 100,608 | 12,720 | 4,582 | 552,849 |

Table 2.1: Establishment and Enterprise Census of Malaysia

(Source: Department of Statistics Malaysia, *Census of Establishment and Enterprise, 2005.*)

2.3 Overview of Eco-Innovation

The common definition of innovation is impartial in terms of content of the change. However, if the emphasis in defining innovation is aligned towards sustainable development, it loses its neutrality and focuses more on the reduction of environmental burdens (Rennings, 2000). In order for the innovative solution to truly support environmental and economic sustainability, the advantages of green technology must be exploited.

The eco-innovation term is often used to categorize innovations that contribute to a sustainable environment through the development of conservation and ecological improvements (Halila & Rundquist, 2011). The living conditions of present and future generations will have a significant improvement if there is enough support for the development and diffusion of more ecologically fit products, processes, organizational models and system. According to the SYSTEMATIC panel on eco-innovation the definition of eco-innovation is “the creation of novel and competitively priced goods, processes, systems, services, and procedures designed to satisfy human needs and provide a better quality of life for everyone with a life-cycle minimal use of natural resources (materials including energy and surface area) per unit output, and a minimal release of toxic substances” (Technopolis, 2008)

Eco-innovation is a significant concept to businesses for sustainability and green growth purpose. According to Fussler and James (1996), customers are provided with business value through the new products and processes from the eco-innovation concept while significantly decreasing environmental impacts. Eco-innovation considers solutions for invigorating the deteriorating world economy and preventing further environmental and economic loss from climate change. The Organization for Economic Cooperation and Development (OECD, 2008), describes eco-innovation as the contributions of businesses towards an ecological growth while cultivating competitiveness by analyzing eco-innovation activities in three dimensions in which are targets, mechanisms and impacts.