IMPACT OF KENAF TOWARDS ENHANCING ORGANIZATIONAL PERFORMANCE: A STUDY IN MANUFACTURING ORGANIZATION

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DECLARATION

I declare that this project paper entitled "Economic Impact of Kenaf as a Manufacturing Tooling in Manufacturing Organization" is the result of my own research except as cited in the references. The project paper has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

Signature:…….
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Date: 24 June 2013

DECLARATION OF SUPERVISOR

Acknowledge that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Bachelor of Technology Management (Innovation Technology)

Signature:…….
Supervisor : Dr. Juhaini Bt Jabar
Date: 24 June 2013

Signature:…….
Supervisor : Mr. Isma Addi B. Jumbri
Date: 24 June 2013

DEDICATION

..Special for mother and father...

A lot of love and sacrifice that has been poured out will I remember to the end of life

..Special for my sisters and brothers...

Thank you for always supporting this brother struggle

..Special for my friends …

I will never forget your support..

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ABSTRAK

Sebelum ini dunia hanya bergantung kepada sumber majoriti yang tidak boleh diperbaharui seperti minyak dan petroleum, gas asli dan arang batu untuk menjana produk dan perkhidmatan, terutamanya dalam sektor pembuatan. Kekurangan pengetahuan dan kemahiran dalam menguruskan sumber-sumber secara optimum menyebabkan dunia berhadapan dengan krisis kekurangan sumber. Menjadi tanggungjawab kepada semua negara termasuk Malaysia untuk mencari alternatif lain bagi sumber-sumber baru. Hal ini penting untuk memenuhi keperluan masyarakat pada masa hadapan. Terdapat beberapa sumber alternatif lain yang boleh digunakan dalam sektor pembuatan seperti EFB (Empty Fruit Bunches), biomass dan Kenaf untuk menggantikan sumber yang tidak boleh diperbaharui. Walau bagaimanapun, Kenaf akan dipilih dalam kajian ini kerana Kenaf adalah salah satu sumber yang berpotensi untuk meningkatkan konsep pengaplikasian teknologi hijau sebagai sumber yang boleh diperbaharui dan mempunya kelestarian yang tinggi. Kajian ini akan mengkaji kesan ekonomi dengan menggunakan Kenaf dalam industri pembuatan. Data untuk kajian ini akan memberi tumpuan kepada beberapa respondent, manakala data yang dikumpul akan dianalisis secara kuantitatif. Kesimpulannya, Kenaf merupakan sumber baru yang sangat penting untuk menggangtikan sumber yang tidak boleh diperbaharui seperti petroleum, gas dan gegelung terutamanya dalam industri pembuatan. Penggunaan Kenaf diramalkan berupaya untuk meningkatkan keuntungan korporat, mengurangkan kos operasi dan meningkatkan bahagian pemasaran syarikat selain mengurangkan pencemaran, mengekalkan alam semula jadi, selamat dan menjaga tingkat kebajikan komuniti, pengguna dan masyarakat secara keseluruhannya.

ABSTRACT

Previously world only depends on majority unrenewable resources such as oil and petroleum, natural gas and coal to generate product and services, particularly in the manufacturing sector. Lack of knowledge and skills in managing resources optimally causes a world crisis that leads to resource depletion. It is the responsibility of all countries including Malaysia to find other alternatives for new sources. It is important to meet the needs of the community in the future. There are some other alternative source that can be used as tooling manufacturing in the manufacturing sector as EFB (Empty Fruit Bunches), Biomass and Kenaf to replace non renewable resources. However, Kenaf will be selected as a manufacturing tool because Kenaf is one of the sources with the potential to enhance on the application of green technology in renewable energy and sustainable manufacturing. This research will examine the economic impact of using Kenaf in the manufacturing industry. Data for this study will focus on several states such as Perak, Selangor, and Malacca. Questionnaires will be disseminated to respondents, while data collected will be analyzed quantitavely. In conclusion, Kenaf is a new source that is very important to replace unrenewable source such as petroleum, gas and coil in manufacturing industry especially in the manufacturing industry. The use of Kenaf is predicted to enhance corporate profitability, reduce operation cost and increase market share other than minimizing the pollution, natural conserving of energy and resources, safe and healthy for employee communities, consumer and socially.

Keywords : Manufacturing tooling, Economic impact.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

Nowadays, expert necessary thinks other sources to replace resources that unrenewable like petroleum, natural gas and coal to the creation of goods and services using processes and systems that are non polluting, natural conserving of energy and resources, economically viable, safe and healthful for employees, communities, consumer and socially and creatively rewarding for all working people. Estimated because of human resource consumption, by the end of the 21st century, the global average temperature will have increased between 2°c and 7°c when compared with the actual value. To mitigate greenhouse effect in the future, it is very important to firms currently looking for an alternative or to innovate.

Kenaf is alternative that is best to replace resources that unrenewable apart from EFB and Biomass to generate especially product inside manufacturing industry. Kenaf or the scientific name Hibiscus Cannabinus L. That is short-term crop where Kenaf is a type of fibrous tree not woody. Kenaf be selected in this study compared Biomass or EFB because Kenaf contain advantage such as 30% fiber (fiber) in part bast (outer skin) and 70% core (pith) from stem inside. According To Fords (2012), they will produce component for their car door with the result of the combined 50:50 Kenaf and polypropylene because it more economical. Some of the products that can be produced from Kenaf core is absorbent material, animal coverings, biocomposite

automotive component (insulators and bumpers) and component materials. While, form Kenaf fiber can also produce products such as jute, textile rope, thread and component materials (fiberboard and ceiling plaster). Additionally, Kenaf can also be sources of food for animals and be able to produce oil as fuel. However, the production of oil as fuel from Kenaf, are still in the study.

To get information on this Kenaf, Studies will be conducted in a number of states that be selected among them Perak, Negeri Sembilan and Malacca. A questionnaire will be disseminated to respondent answer, while data collected will be analyses quantitative. The issues discussed in this study limited to national level issues based on the manufacturing tooling of the manufacturing management perspective.

After identifying the use and potential Kenaf, move further is ensure relationship Kenaf with theory that used by. Government policy and regulation be selected as theory to back potential Kenaf towards sustainable manufacturing tooling in Malaysia. Government policy and legislation is very important to a particular manufacturing organization in the country. This is because through Malaysia Plan Policy, fiscal and tax incentive, Act Kenaf and Tobacco Board, Customized Incentive Scheme and the Green Technology Financing Scheme Fund manufacturing organization will be stimulated to use Kenaf as a new challenge to sustainable manufacturing in the future. As the Impact, the organization which used Kenaf will be predicted to enhance corporate profitability and reduce operation cost other than minimizing the pollution, natural conserving of energy and resources, safe and healthy for employee communities, consumer and socially.

In conclusion, Kenaf is a new source that is very important to replace source that cannot be renewable such as petroleum, gas and coil in industrial manufacturing in Malaysia and can enhance corporate profitability, reduce operation cost and increase market share as an economic impact of Kenaf in manufacturing organization performance other than minimizing the pollution, natural conserving of energy and resources, safe and healthful for employees, communities, consumer and socially.

1.2 Objective

The main objective of the research is to conduct a study on the application of Kenaf as a manufacturing tooling in manufacturing organization in Peninsular Malaysia. In the manufacturing industry in Peninsular Malaysia, Kenaf is still not widely used and applied by the manufacturing firms. The main concept of the application of Kenaf as a manufacturing tooling is to improve the economic impact and green technology in manufacturing organizations. This is to be accomplished by:

- To investigate the government incentive and regulation impact toward Kenaf utilization as a manufacturing.

- To analyze the impact of using Kenaf as a manufacturing tool towards organizational performance.

1.3 Problem Statement

Earlier most of the countries dependent on natural resources to develop the infrastructure and the needs of their citizens. Most of these resources are used without proper planning due to lack of skills and knowledge to manage it at the maximum level. As a result, the world is critically lacking or depletion of resources for development, manufacturing, agriculture, farming and so on. It therefore becomes a challenge to the world and Malaysia in particular to find an alternative source of support resources are running out.

A Malaysian situation that axis equator line and tropical rainforest region will get rain and sunlight that are perfect throughout the year. This privilege enables Malaysia maximize all privilege that there is to generate new sources. MARDI finds out Kenaf can live fertile in most land in this country and can achieve dry as much as stem result

15-20 ton to every hectare. Fiber and core Kenaf can be used to produce products environmentally friendly such as fiberboard, chipboard, automotive internal component and textile.

Now Malaysia is focusing on the application of Green technology in renewable energy sources and sustainable manufacturing. Many of people and industries who involved in this business are not aware of the government incentives, for the development of this business. Incentives will be helpful for the procurement of equipment in any kind of business. The government is providing enormous tax benefits in many stages like procurement, installation and startup of the plant.

There are three challenges to be faced in the study of the extent to which the ability of Kenaf as a new source for producing the same products produced by the previous sources, the economic impact on companies that use them and the extent of the correlation factor of enabling Kenaf in manufacturing organizations..

1.4 Research Question

Better awareness among the manufacturing producers on using the green technology applications will directly influence the effective utilization of Kenaf by product in Malaysia. The question is what are the enabling factors for utilizing Kenaf as a manufacturing tool towards achieving positive economic impact:

- How can the government incentive and regulation impact Kenaf utilization in manufacturing organization?

- What are the impacts of using Kenaf as a manufacturing tool towards organizational performance?

1.5 Limitation

The study limits only on Peninsular Malaysia manufacturing organization for the large and medium manufacturing industry project value between RM 5 million and above although there are other categories and size of projects available in the industry.

The issues discussed in this study limited to national level issues based on the manufacturing tooling of the manufacturing management perspective. Even though there are many states in Peninsular Malaysia, only a few states is selected to focus for this study. In addition, in preparing questionnaire, there are few obstacles that may limit the efforts in establishing detailed and ample data collection for analysis on the need of economy impact of Kenaf in manufacturing industry such as:

1.5.1 Negeri Sembilan, Perak and Melaka are a state selected to implement questionnaire. The studies aren't covering all the states in Peninsular Malaysia

1.5.2 The issues discussed in this study limited to national level issues based on the manufacturing tooling of the manufacturing management perspective.

1.5.3 A questionnaire will be disseminated to respondent answer, while the data will be analyses quantitative only.

1.5.4 Kenaf only will be studied on this research on manufacturing organizations.

1.5.5 For the future studies can be expanded this study because of this research only look at factors and impact of manufacturing organizations.

1.6 Scope of the study

Kenaf or the scientific name Hibiscus Cannabinus L. that is short-term crop where Kenaf is a type of fibrous tree not woody. Kenaf be selected in this study compared Biomass or EFB because Kenaf contain advantage such as 30% fiber (fiber) in part bast (outer skin) and 70% core (pith) from stem inside. Fiber and Core Kenaf can be used to produce products environmentally friendly such as fiberboard, chipboard, component in automotive, textile and feed. Furthermore, the studies are predicted to increase economic impact such as corporate profitability, reduce operation cost and increase market to company use Kenaf as a manufacturing tooling. Studies will be conducted in several states to be chosen among Perak, Selangor and Melaka to get the information. To collect the data, questionnaires will be disseminated to the respondent and the collected data will be analyses quantitavely.

1.7 Summary

This study will be conducted in a selected number of states such as Selangor, Perak and Malacca. The purpose of this study will be to determine the impact of Kenaf as a new source of energy to replace the use of existing resources and identify the products that can be produced by Kenaf. Further, the study will be a basis for a manufacturing organization to consider using Kenaf as an alternative tool.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This research study about the potential of Kenaf as a new sources to implement in the manufacturing industry. Kenaf is alternative that is best to replace resources that unrenewable apart from EFB and Biomass to generate especially product inside manufacturing industry. Kenaf be selected in this study compared Biomass or EFB because Kenaf contain advantage such as a 30% of fiber and 70% of core whereby Kenaf is one of the sources with the potential to enhance on the application of green technology in renewable energy and sustainable manufacturing. Use of natural fiber of Kenaf such as thermoplastic components in the automotive industry can provide the advantages of weight reduction, cost reduction and recyclability, in addition to eco-efficiency and renewability compared to synthetic conventional materials (Jeyanthi, 2012). The goals of this research is how government incentive and regulation encourage implementation of Kenaf as a manufacturing tooling in Malaysia as well as predict the economic impact of kenaf in manufacturing organizations.

2.1 Literature Review

The literature review that must have in our research study is about all the materials that related our research in order to support my project paper. The literature review is important to show where we got the information about our study.

2.1.1 Government incentive and regulation to encourage implementation of Kenaf as a manufacturing tooling

Malaysia today stands as one of the most significant junctures in the history of her progress. The New Economic Model unveiled by our Prime Minister Datuk Seri Mohd Najib Tun Razak in 2010, guided by the three principles of high income, sustainability and inclusiveness aim to elevate Malaysia to the next stage of development so that the society can enjoy the benefits of living in a fully developed nation. Annual Productivity & Innovation Conference and Exposition 2012 is a prime event organized by Malaysia Productivity Corporation (MPC), the country's lead agency to spearhead productivity development as part of its effort to create greater awareness on the importance of productivity and innovation across a society in transition (APIC 2012).

In Malaysia, the energy policy promotes renewable source to replace unrenewable sources such as Kenaf. Under the Third Outline Malaysia Plan (OPP3 2001-2010) and the Eight Malaysia Plan (8MP - 2001-2005), the government will intensify and accelerate the development and use of renewable sources. The strategies of the 8MP for Renewable Energy are: 1) promotion of RE resources such as biomass, biogass, municipal waste, solar, and mini-hydro; 2) in-house biomass based cogneration; 3) demonstration projects; 4) commercialization of research; 5) extension of financial and fiscal incentives; 6) promotion of cooperation between public and private sector;

and 7) R&D on palm diesel and use of alternatives sources such as fuel cell, hybrid cell and hydrogen fuel (Rancangan Malaysia Kesembilan, 2006).

The government has introduced various fiscal and tax incentives throughout the years to enhance the investment climate and stimulate private sector business activities in the manufacturing, industrial, agriculture and not to be left the environment sector. All these efforts are aimed at boosting the economic growth and increased the standard of living of all Malaysians. The tax incentives available in Malaysia are stipulated in the Income Tax Act 1967 (ITA) and the Promotion of Investment Acts 1986 (PIA). The laws give a great opportunity for the industries to enjoy the incentives either in the form of tax holidays or reduction in the chargeable (Incentive for sustainability, 2012)

In Malaysia, projects developers can avail of the following incentives: 1) income tax exemption of 70% on statutory income of 5 a year or an investment tax allowance of 60 percent of capital expenditures incurred within a period of 5 years and to be utilized against 70% of the statutory income; and 2) import duty and sales tax exemption on imported machinery and equipment and sales tax exemption for domestically produced machinery and equipment (Incentive for sustainability, 2012)

Act Lembaga Kenaf Dan Tembakau Negara (LKTN) was approved by Parliament Malaysia and was gazetted on 8 January 2009. 1962 Act became effective implementation in Malaysia on April 1, 2010. Pursuant to section 39 (1) AKTA 692, activities that need to be licensed are as follows: 1) buy Kenaf; 2) sell products Kenaf, 3) processing Kenaf; 4) manufacture Kenaf; 5) import and export Kenaf; 6) curing tobacco; 7) buy cured tobacco; 8) manufacture tobacco or tobacco products; 9) blending tobacco; and 10) distributing tobacco or tobacco products (Akta Kenaf LKTN, 2010).

The package of assistance grants under the Customized Incentive Scheme, Section 127, Income tax Act 1967 on the request of the companies and the metrics of each case. The funds aim to: 1) harness and leverage on outsourcing opportunities created by multinationals operating in Malaysia; 2) Intensity technology acquisition by

Malaysia-owned companies; 3) Enable Malaysian-owned companies to obtain the international standards/certifications in strategic industries. The fund does not offer an outright grant and is contingent on the investment of the applicant. The fund will provide matching grants to cater for expenditures incurred for the following activities: 1) training of Malaysian; 2) R&D activities carried out in Malaysia; 3) modernization and upgrading of facilities and tools to undertake manufacturing or services activities for multinational corporations and Malaysian conglomerates (outsourcing activities); 4) obtaining international standards/certification; and 5) licensing or purchasing of new/high technology (Incentives for sustainability, 2012).

Eligibility criteria to gain this incentives is 1) incorporated under the Companies Act 1965; 2) new companies in the manufacturing and service sector with the Malaysian equity ownership of at least 60 per cent; 3) existing companies in the manufacturing and services sector with Malaysian equity ownership of at least 60 per cent undertaking reinvestments (expansion/modernization/diversification); 4) companies producing promoted product in promoted activities in the following priority sectors such as Aerospace, Green technology, Advanced electronic, Machinery and equipment, Renewable energy and Pharmaceuticals (Incentives for sustainability, 2012).

The government increases Green Technology Financing Scheme Fund by RM2 billion. The fund is extended for another three years, from 2012 to 2015. GTFS is a soft supported by the government, carrying a two per cent subsidy of the interest rate by the government and a 60 per cent guarantee on the amount of financing. The criteria for a green technology projects are as follow: 1) minimizes the degradation of the environment; 2) reduces greenhouse gas emissions; 3) safe for use and promotes a healthy and improved environment for all forms of life; 4) conserve the use of energy and natural resources; and 4) promotes the use of renewable resources (The Green Budget , 2013).

As a conclusion, this research about the correlation between government policy and legislation to encourage implementation of Kenaf as a manufacturing tooling. Through Malaysia Plan Policy, fiscal and tax incentive, Act Kenaf and Tobacco Board, Customized Incentive Scheme and the Green Technology Financing Scheme Fund, manufacturing organization will be stimulated to use Kenaf as a new challenge to sustainable manufacturing in the future. As the Impact, the organization which used Kenaf will be predicted to enhance corporate profitability and reduce operation cost other than minimizing the pollution, natural conserving of energy and resources, safe and healthy for employee communities, consumer and socially.

2.1.2 Kenaf applications

Kenaf is alternative that is best to replace resources that unrenewable apart from EFB and Biomass to generate especially product inside manufacturing industry. Kenaf or the scientific name Hibiscus Cannabinus L. that is short-term crop where Kenaf is a type of fibrous tree not woody. Kenaf be selected in this study compared Biomass or EFB because Kenaf contain advantage such as 30% fiber (fiber) in part bast (outer skin) and 70% core (pith) from stem inside. According To Fords (2012), they will produce component for their car door with the result of the combined 50:50 Kenaf and polypropylene because it more economical. Some of the products that can be produced from Kenaf core is absorbent material, animal coverings, biocomposite automotive component (insulators and bumpers) and component materials. While, form Kenaf fiber can also produce products such as jute, textile rope, thread and component materials (fiberboard and ceiling plaster). Additionally, Kenaf can also be sources of food for animals and be able to produce oil as fuel. However, the production of oil as fuel from Kenaf, are still in the study (Admin, 2012).