UNIVERSITI PUTRA MALAYSIA

FACTORS DETERMINING STAKEHOLDERS' PERCEPTION OF KENAF CULTIVATION IN KELANTAN, MALAYSIA

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the Degree of Master of Science.

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June 2014

Chairman: Professor Mohd Shahwahid Bin Haji Othman, Phd

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Global warming has led to renewed interest in the more sustainable use of natural fibers in composite materials. This has led to a resurgence of interest on Kenaf fibers. The Malaysian government has selected Kenaf as a new commodity and natural fiber to be given support and priority. Even though the Government has provided incentives and support in Kenaf development, the progress in Kenaf cultivation has not met the expectation of the Government.

The objectives of this study are i) to identify the important stakeholders, their stakes and roles in Kenaf cultivation in Kelantan and ii) to determine the critical factors influencing farmers' participation in Kenaf cultivation. For the first objective, social network analysis has been used to identify the stakeholders in Kenaf cultivation and for the second objective based from the result in the first objective, factor analysis is applied to map out the stakeholder' perspective in Kenaf cultivation. Data for social network analysis and factor analysis are collected through interviews using structured questionnaire.

This paper provides the preliminary findings of this investigation. The result from social network analysis enables the identification of the real critical stakeholder in Kenaf cultivation which is the farmer. This key stakeholder is the target for fostering the growth of the Kenaf industry. The findings from factor analysis show that there are six significant factors; i) economic potentials in Kenaf cultivation, ii) strategies of tobacco cultivation, iii) grievances over Kenaf cultivation, iv) farmers' perspectives in changing crop cultivation, v) challenges on market assurances, and (vi) campaign and promotion to attract farmers involvement in Kenaf cultivation.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
Sebagai memenuhi keperluan untuk Ijazah Master Sains

FAKTOR YANG MEMPENGARUHI PERSEPSI PIHAK BERKEPENTINGAN DALAM PENANAMAN KENAF DI KELANTAN, MALAYSIA

Oleh

AMIRA MAS AYU BINTI AMIR MUSTAFA

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Keperluan terhadap penggunaan gentian asli yang lebih mampan bagi bahan komposit telah membawa kepada pembangunan pada gentian Kenaf. Kerajaan Malaysia telah memilih dan memberi sokongan yang besar kepada Kenaf sebagai satu komoditi baru bagi menggantikan tanaman tembakau. Walaupun Kerajaan telah menyediakan pelbagai insentif dan sokongan dalam pembangunan Kenaf, namun begitu, kemajuan dalam penanaman Kenaf masih belum memenuhi jangkaan Kerajaan.

Objektif kajian ini adalah i) untuk mengenal pasti pihak yang berkepentingan serta peranan mereka dalam penanaman Kenaf di Kelantan serta, ii).untuk menentukan faktor-faktor kritikal yang mempengaruhi penyertaan pihak berkepentingan iaitu petani dalam penanaman Kenaf itu sendiri.
Bagi memenuhi objektif yang pertama analisis rangkaian sosial telah digunakan manakala analisis faktor telah digunakan bagi objektif kedua untuk memetakan perspektif pihak berkepentingan dalam penanaman Kenaf. Data bagi analisis rangkaian sosial dan analisis faktor ini dikumpul melalui hasil dari temu bual dan menggunakan soal selidik berstruktur.

Beberapa penemuan baru diperolehi daripada hasil kajian ini . Analisis rangkaian sosial menunjukkan bahawa terdapat beberapa pihak berkepentingan yang terlibat dan bertanggungjawab untuk menyelesaikan masalah yang timbul dalam penanaman Kenaf. Pihak berkepentingan ini akan menjadi sasaran untuk memajukan industri Kenaf ini. Menerusi analisis faktor dapat dirumuskan bahawa terdapat enam faktor yang akan mempengaruhi petani di dalam penglibatan mereka dalam penanaman Kenaf; i) potensi ekonomi dalam penanaman Kenaf, ii) strategi dalam penanaman tembakau, iii) rungutan berkaitan penanaman Kenaf, iv) perspektif petani dalam penanaman gantian baru, v)

cabaran dalam pasaran pertanian itu sendiri dan vi) ketiadaan kempen dan promosi dalam penggunaan serta penanaman Kenaf di Malaysia.

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LIST OF ABBREVIATIONS

AFTA	Asean Free Trade Agreement
BTS	Barlett's test of sphericity
ECER	East Coast Economic Region
FAO	Food and agriculture organization
FRPC	fiber reinforced plastic composite
ICKAF	International Conference on Kenaf& Allied Fiber
ISN	Information Sharing Network
KMO	Kaiser-Meyer-Olkin
MTIB	Malaysian Timber and Industry Board
NGO	Non-Governmental Organisations
NKTB	National Kenaf and Tobacco Board
NTB	National Tobacco Board
PFM	Participatory Forest Management
R&D	Research and Development
RELU	UK Rural Economy and Land Programme
SN	Social Network
SNA	Social Network Analysis
SOMAP	Towards Solent Marine Planning
SPSS	Statistical Product and Service Solution
SVN	Stakeholder Value Network
UNESCO	United Nations Educational, Scientific and Cultural Organization

CHAPTER ONE

INTRODUCTION

1.0 Introduction

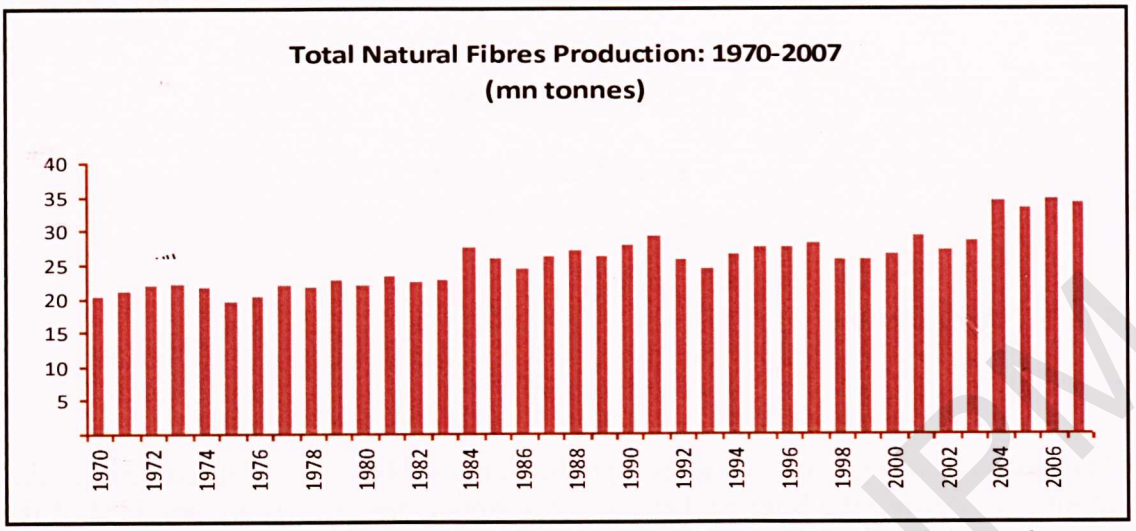
The general background of Kenaf production in Malaysia is discussed in this chapter. Following the brief background, descriptive discussions are provided of the issues, challenges and problems faced by the Kenaf farming community. This forms the problem statement of this thesis. This allows the definition of the objectives of the study, and the justification of the study. The chapter ends with the organization of the thesis.

1.1 Background of Kenaf

Environmental and green awareness has significantly increased the importance of natural fibres, not only among subsistent and industrial producers, but also to consumers of bio-composite materials. There is a need for bio-composite to be developed since there are many reasons. One of the reasons is the rise in price of wood resources, the availability of new sources of fibres, the awareness of the environmental and the research and development in the developed countries will derived the development for this commodity such as market readiness and acceptance, market outlook and trends and product substitution (Harun *et al*, 2009).

Natural fibre is a sustainable source that is categorized as eco-friendly and is aligned with the Kyoto Protocol to mitigate global warming. Natural fibre offers advantages in environmental such as decreasing dependence on non-renewable energy, lower pollutant emission and lower greenhouse gasses emissions (Joshi *et al*, 2004). Natural fibers could be produced from several plants of which Kenaf (Hibiscus cannabinus) from the Malvaceae family is one of them.

From figure 1, total world natural fibre production shows a steady rising trend since 1970 until 2007. From 1970 to 2007, total global natural fibre production increased at an average annual rate of 1.6%. This led to a global production level of 26.4 million tonnes in 2007. Natural fibre production is estimated to increase 13.7% to 30 million tonnes from 2007 to 2012 (Yarns and Fiber Exchange, 2007).



Source: Food and Agriculture Organization (FAO)

Figure 1: World production of Natural fibre

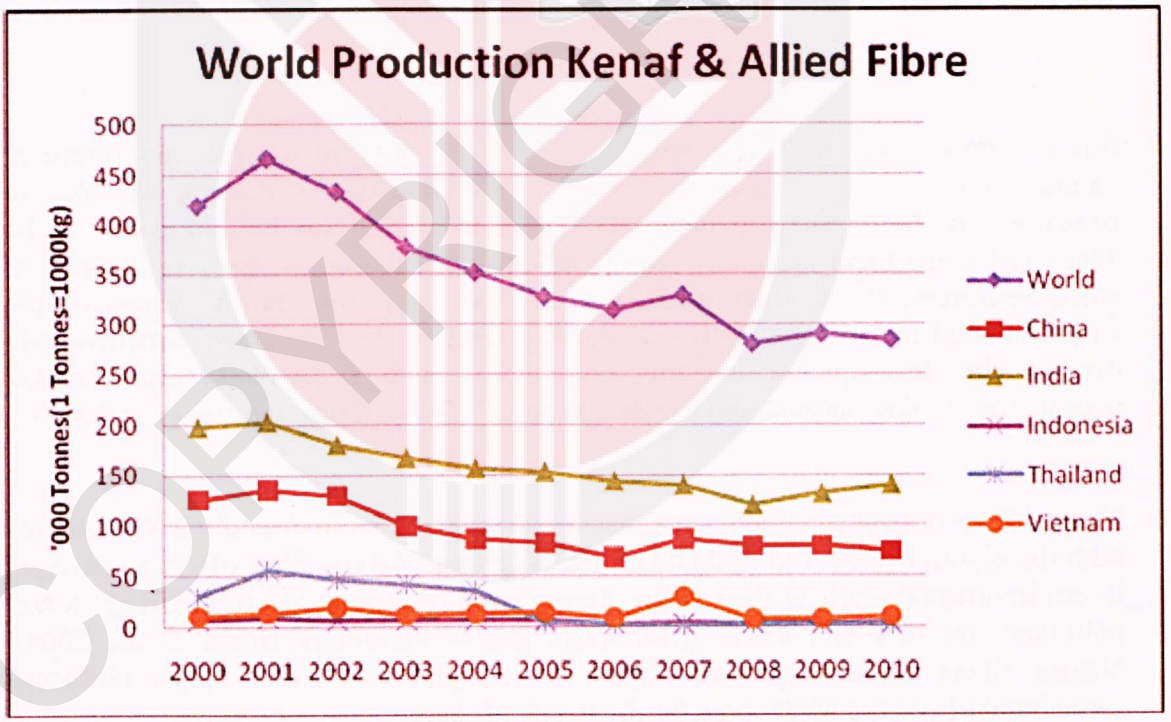


Figure 2: World production of Kenaf& Allied fibre from 2000/2001 to 2010/2011

In *'000* Tonnes

Figure 2 shows the trend in Kenaf production among major producing countries since 2000 to 2010. The world's major producing countries of Kenaf fibres are India and China. India's production volume declined from 203.4 thousand tonnes in 2000 to 140 million tonnes in 2010 while China's production volume dropped from 136 thousand tonnes in 2001 to 75 thousand tonnes in 2010.Thailand dropped from 56

thousand tonnes in 2000 to 1.8 thousand tonnes in 2010. Since Malaysia is new in Kenaf production, its volumes are not recorded.

1.2 Kenaf in Malaysia

Even though natural fibre shows an increasing pattern since the last decade, but Kenaf and its allied fibres registered a distinct trend since 2000 until 2010. The above declining trends are contributed by the reducing demands for the traditional products being made from Kenaf such as gunny sacks. The use of Kenaf for the production of such low value processed products obviously could not compete with the cheaper plastic bags. Kenaf was introduced in Malaysian industry in the early 1970s and it was recognized as a potential alternative crop material for the production of panel products such as fibre board and particle board in the late 1990s (Abdul Khalil *et al.* 2010).

Previous research undertaken by Paridah *et al.* (2009) shows that kenaf fibres could be used for the production of higher value processed products such as the higher priced insulation boards, automotive components and body armour. Malaysian Government sees an opportunity to promote the growth of this new commodity in the country (Paridah *et al*, 2011). Dempsey (1975) says that factors that affect Kenaf fibre yield include the adaptability to the cultivated area, rainfall, temperature, soil type, and fertility. The weather in Malaysia is suitable for all year round cultivation of Kenaf and this could possibly replace tobacco as a crop for cultivation by farmers.

With the above possibilities, there has been interest in Kenaf as a renewable fibre source for the manufacture of these high value-added products especially in bio-composites materials (automobile industry, insulation board and body armour) and this could be potentials for Malaysia to plant and develop Kenaf crops. As an example, Toyota has increasingly used more natural fibre such as Kenaf since 1999. Kenaf fibres have been used in board productions along with polypropylene as the composites of choice for door trims for vehicles such as Toyota and Ford (Discover natural fibre, 2009). The potential for Kenaf is further enhanced with the reported application of Kenaf fibre into the production of bio-composite products such as chipboard, fibreboard, fibre reinforced plastic composite (FRPC), kenaf oriented board, anti-ballistic products and light weight and high performance products made for the automotive industry (ECER report 2010). In fact, the Government has been hoping that Kenaf could transform into a new source of growth in Malaysia to diversify the country's commodities sector. (ECER report 2010).

Under the East Coast Economic Region (ECER), Kenaf has been identified as one of the potential crops to be developed (ECER report 2010). Kenaf can be planted all year round in Malaysia because of the tropical climate with the temperature ranging from 20°C to 30°C. Due to declining tobacco world prices and the 5% reduction in

import duties brought about by the enforcement of the Asean Free Trade Agreement (AFTA), almost 5000 tobacco farmers would be affected (All voices, 2010). Kenaf could be a potential crop to replace tobacco.

The conversion of National Tobacco Board (NTB) to National Kenaf and Tobacco Board (NKTB) also shows the Government's commitment to encourage the development of the Kenaf industry. In order to develop the Kenaf industry, NKTB has allocated some capital and resources (i) to carry out research and development activities and (ii) to provide incentives that could attract farmers to plant Kenaf and for industry to include Kenaf as the raw material in their products (ECER report 2010).

1.3 Problem Statement

Under the Ninth Malaysia Plan, the Government has already allocated RM35 million for the Kenaf industry development. In the year 2010, the National Kenaf and Tobacco Board (NKTB) received a RM 33 million budget for the financing of Kenaf development programs which included crop planting, infrastructure development, procurement of machinery, farm mechanization, seeds farm, and Kenaf processing (ECER report 2010). Table 1 shows the programs that have been developed and their estimated budget allocation. The largest budget allocation was for financing of Kenaf crop cultivation.

Table 1: Seven Key Programs for Kenaf Industry Development in 2010.

No	Program	Cost (RM Million)
1	Kenaf Crop Planting	10,267,500
2	Infrastructure Development	6,800,000
3	Procurement Machineries	7,197,300
4	Farm Mechanization	5,000,000
5	Seeds farm	500,000
6	Kenaf Processing Centre	2,150,000
7	Kenaf Craft Development	1,000,000
	TOTAL	**32,914,800**

**Source: National Kenaf and Tobacco Board*

With the NKTB's Kenaf Development Program 2010, this organization has provided capital investment to smallholders amounting to RM6,400 per hectare as incentives to farmers to cover land rental cost, seeds, fertilizers, pesticides and labour cost. NKTB also provides the basic farm infrastructure at the planting area that comprises road, irrigation system, and water management system. NKTB also provides RM3.9

million to develop a "*Buy Back Scheme*" package to attract more farmers to be involved in Kenaf plantation (ECER report, 2010). In this package, NKTB will act as a buyer if the industry fails to buy the farmer's yield. NKTB also provides basic farm infrastructure such as irrigation system, water management system, collection and storage centre.

Kenaf cultivation involves many stakeholders, and there is a need to identify their stakes and influences on the performance of the Kenaf cultivation and processing industry. Understanding these stakes and influences, and overcoming the constraints that they face could improve and attract more investors to invest in the Kenaf industry. The success of one industry development is dependent on stakeholders' perspective and how they handle the management

Freeman (1984) and Donaldson and Preston (1995) defined a stakeholder as any group or individual who can affect or is affected by the achievement of the organization's objectives and must have a legitimate interest in the organization. In the context of the promotion of Kenaf development by the Government, affected stakeholders' interests and stakes have to be understood and fulfilled to raise the stakeholders' participation in the Government's Kenaf development programs. Greater linkage among these stakeholders and their involvement towards raising Kenaf fibre production and utilization could overcome various impediments constraining the Kenaf development programs set by NKTB.

Even though the Government has provided the incentives and support packages for Kenaf development, the progress in Kenaf cultivation and processing has not met the expectation of the Government. The local farmers are still not embracing Kenaf as a commodity crop and the return is still not as lucrative as other crops. This is shown from the statistics on Kenaf production area (Table 2). The extent of the Kenaf area planted in Peninsular Malaysia is fluctuating over the 2006-2010 period with no definite growing trend.

Farmers are still uncertain and are having negative perceptions towards development in the Kenaf cultivation (Simon Khoo, 2010). This issue is more complicated than it is perceived by the public. There are many stakeholders and factors involved in the Kenaf cultivation. Their interplay and influences have not been investigated thoroughly by the government (ECER 2010).

Table 2: Kenaf Planted and Production Area by State (2006-2010)

State	2006			2007			2008			2009			2010e		
	Area (Hectares)	Production		Area (Hectares)	Production		Area (Hectares)	Production		Area (Hectares)	Production		Area (Hectares)	Production	
		Tonne	RM		Tonne	RM		Tonne	RM		Tonne	RM		Tonne	RM
Kelantan	41	1,838	165,402	200	936	280,000	283	58	114,000	228	1,970	985,000	500	5,000	2,500,000
Terengganu	70	2747	247,197	85	-	-	180	30	9,000	115	941	470,500	510	5,100	2,550,000
Kedah	51	2	54,750	84.5	18	450,000	126	5	118,650	88.5	35	875	50	500	250,000
Perlis	8	11	287,750	67.5	12	300,000	101	1	2,500	46.5	19	475	50	500	250,000
Pahang	-	-	-	-	-	-	-	-	-	-	-	-	1.000	10,000	5,000,000
Melaka	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-
Perak	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-
Sabah	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-
TOTAL	**170**	**4,598**	**755,099**	**437**	**966**	**1,030,000**	**690**	**94**	**244,150**	**478**	**2,965**	**1,456,850**	**2125**	**21,150**	**10,555,0000**

Source: National Kenaf and Tobacco Board

1.4 Objective of the study

The general objective of this study is dedicated towards examining the issues in overcoming constraints in the promotion of Kenaf cultivation and processing in Malaysia. This aim is addressed by two specific objectives as follows:

i. To identify the important stakeholders and their stakes and roles in Kenaf cultivation
ii. To determine the critical factors influencing the participation of the most important stakeholder in Kenaf cultivation.

1.5 Justification of the Study

This study is justifiable to ensure that the commitments and investments made by the Government in Kenaf fibre development bear fruit as was intended. With greater understanding of the issues and the roles played by various stakeholders, and possibilities of overcoming these constraints, would make this investigation an important instrument to helping the Government in resolving the issues on Kenaf cultivation in Malaysia.

1.6 Organization of the thesis

This thesis will be divided into five chapters namely; introduction, literature review, research methodology, result and discussion and summary, conclusion and recommendation for future research.

Chapter one has discussed the background of Kenaf production worldwide and in Malaysia. It also highlighted the problem statement, objective and the justification of this study.

Chapter two provides a review of the literature on Kenaf cultivation and processing. It will highlight previous research efforts on the characteristic and potential of Kenaf. This chapter also discusses matters pertaining to the use of various methodologies such as factor analysis and stakeholder analysis in investigating issues occurring in Kenaf as well as in other crops. Critical factors in influencing the introduction and cultivation of a new crop will be assessed.

Chapter three focusses on the research methodology that will be used in this study in line with the main objectives set in chapter one. This chapter also discusses how and where the data are collected and explains the procedures involved in handling the data for analysis.

In chapter four, the result on factor analysis and stakeholder analysis will be analysed with regard to the impact on the Kenaf cultivation in Malaysia.

Finally, chapter five provides the summary and conclusions of findings in relation to the impacts of Kenaf cultivation on Malaysian economy. Policy implications, limitations of the study and recommendations for future research would also be highlighted here.

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