



UNIVERSITI PUTRA MALAYSIA

***ORGANIZED SMALLHOLDERS' KNOWLEDGE AND ATTITUDE
TOWARD PALM OIL FARMLAND BIODIVERSITY AND
WILLINGNESS
TO PARTICIPATE IN SUSTAINABLE PALM OIL CERTIFICATION IN
FELDA AYER HITAM, KLUANG, JOHOR***

FATIHAH BINTI AWANG

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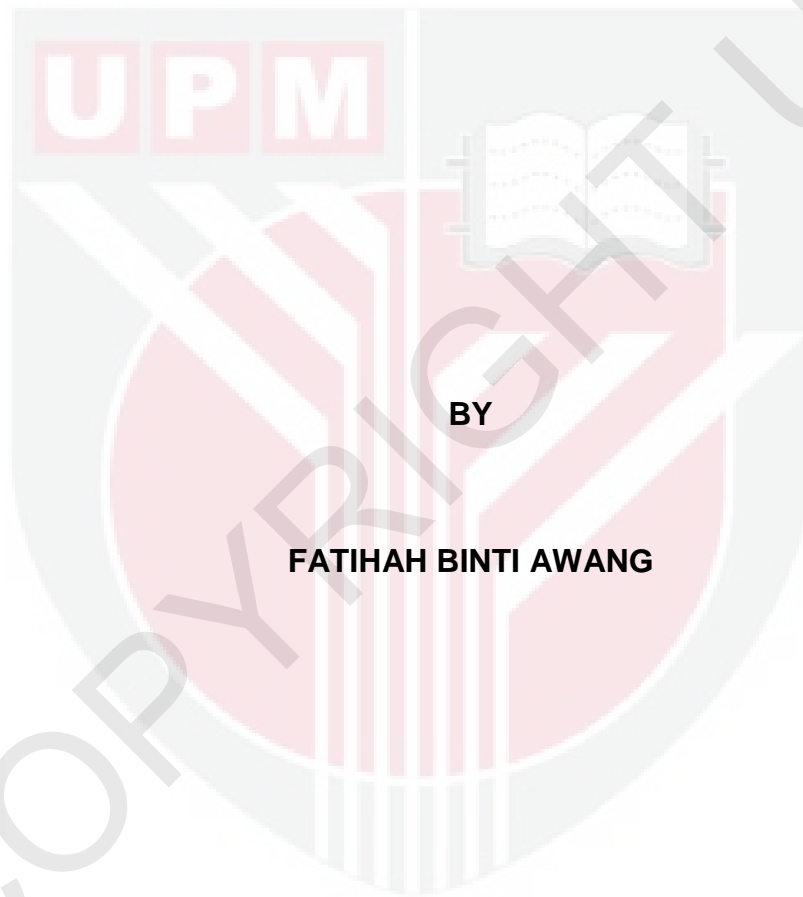
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**FACULTY OF FORESTRY
UNIVERSITI PUTRA MALAYSIA
2016**

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BY

FATIAH BINTI AWANG

**Project Report Submitted in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Forestry Science in the
Faculty of Forestry
Universiti Putra Malaysia**

2016

SPECIAL DEDICATION

MY SPECIAL DEDICATION GOES TO MY BELOVED PARENTS

AWANG BIN AWANG KECHIK AND SITI ESHAH BINTI MOHAMED

TO MY BELOVED SIBLINGS

FIRDAUS AWANG

FAUZIAH HANI AWANG

HAFIZ AWANG

FAEZAH AWANG

FAUZINIZAM AWANG

LOKMAN AWANG

UMIE AIDA AWANG

TO MY BELOVED AND SUPPORTIVE BEST FRIEND

SITI AISAH DAHLAN, SITI AISYAH YAACOB, NURUL IZATI WAGIMIN,

ZULFARINA ZULKIFLI, NURFATIN MUSTAPHA

MAY ALLAH S.W.T BLESS YOU ALL

ABSTRACT

Knowledge and attitudes towards biodiversity and willingness to participate in the certification of sustainable palm oil in Felda Ayer Hitam, Kluang, Johor were determined through the interview with smallholders. Therefore, a study was conducted in Felda Ayer Hitam, the oldest FELDA in Johor. Data were collected using structured questionnaires, through interviews organized smallholders at morning and evening in a month. Target respondents were 50 peoples. The questionnaire had three parts, the first part of the background of the respondents, the second part of the knowledge and attitudes towards biodiversity in oil palm farm and the third is the willingness of organized smallholders to participate in the certification of sustainable palm oil. One-sample T-test was used to compare the net monthly income of smallholders with previous research and compares with fees of RSPO. From this study, the majority of organized smallholder agreed to participate in the certification of sustainable palm oil because it will increase their net monthly income because sales of sustainable palm oil have more profitable than oil that is not sustainable. The organized smallholder also had a good knowledge in assessing the importance of biodiversity in oil palm plantations.

ABSTRAK

Pengetahuan dan sikap terhadap biodiversiti dan kesediaan untuk mengambil bahagian dalam pensijilan minyak sawit lestari di Felda Ayer Hitam, Kluang, Johor diukur melalui penglibatan pekebun kecil dalam menjawab soalan. Oleh itu, satu kajian telah dijalankan di Felda Ayer Hitam, FELDA tertua di Johor. Data dikumpulkan dengan menggunakan soal selidik berstruktur, melalui temu bual pekebun kecil di waktu pagi dan petang dan mengambil masa selama sebulan. Sasaran responden adalah 50 orang. Soal selidik ini mempunyai tiga bahagian, bahagian pertama mengenai latar belakang responden, bahagian kedua pengetahuan dan sikap terhadap biodiversiti di ladang kelapa sawit dan yang ketiga ialah kesediaan pekebun kecil untuk mengambil bahagian dalam pensijilan minyak sawit mampan. Satu-sampel t-test digunakan untuk membandingkan pendapatan bulanan bersih pekebun kecil dengan penyelidikan sebelumnya dan juga perbandingan dengan yuran RSPO. Daripada kajian ini, majoriti pekebun kecil terancang bersetuju untuk mengambil bahagian dalam pensijilan minyak sawit mampan kerana ia akan meningkatkan pendapatan bulanan bersih mereka kerana jualan minyak sawit lestari lebih menguntungkan daripada minyak yang tidak mampan. Pekebun kecil terancang juga mempunyai pengetahuan yang baik dalam menilai kepentingan biodiversiti di ladang-ladang kelapa sawit.

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APPROVAL SHEET

I certify that this research project report entitled “Organized Smallholders’ Knowledge and Attitude Toward Palm Oil Farmland Biodiversity and Willingness to Participate in Sustainable Palm Oil Certification in Felda Ayer Hitam, Kluang, Johor” by Fatihah Binti Awang has been examined and approval as a partial fulfillment of the requirements for the degree of Bachelor of Forestry Science in the Faculty of Forestry, Universiti Putra Malaysia.

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LIST OF ABBREVIATIONS

CSPO	Certified Sustainable Palm Oil
FAO	Food and Agriculture Organization
FELCRA	(Federal Land Consolidation and Rehabilitation Authority)
FELDA	Federal Land Development Authority
GAP	Good Agriculture Practices
MPOB	Malaysian Palm Oil Board
MSPO	Malaysian Sustainable Palm Oil
NGO	Non-Government Organization
RSPO	Roundtable Sustainable Palm Oil
SPOC	Sustainable Palm Oil Certification
TNC	The Nature Conservancy
WWF	World Wide Fund

CHAPTER ONE

INTRODUCTION

1.1 General Background

The palm oil (*Elaeis guineensis*) originates from West Africa where it grows in the wild and then develops into an agricultural crop. Palm oil is a monoecious crop which is both male and female flowers on the same tree. Each tree produces compact bunches weighing between 10 and 25 kilograms with 1000 and 3000 fruitlets per bunch. Palm oil fruitlet is generally dark purple, sometimes almost black and the colour and turns to orange red when it ripe. Each fruitlet consists three parts which is hard kernel (seed), enclosed in shell (endocarp) that surrounded by a fleshy mesocarp. Palm oil can grow up from sixty feet and more.

After 2 years and 6 months, palm oil will start bearing fruits and will continue to be a productive for the next 20 to 30 years and ensuring a consistent supply oils. According to Malaysian Palm Oil Council (MPOC), in Malaysia, palm oil that planted is mainly the *Tenera* variety, hybrid between *dura* and *pisifera* which produce 25% more oil than others and about 80% of Malaysian palm oil goes to food uses. In addition, palm oil is the most efficient crop in world, to produce one tonne of oil, required only 0.26 hectares compare to soybean and sunflower required 2.22 and 2 hectares respectively to produce the same amount of oil.

In early 1870s, it was introduced in Malaysia by British as an ornamental plant. The first commercial planting took place in Tenmaran Estate in Selangor in 1917 which that laying the foundations for the vast oil palm plantations and the palm oil industry in Malaysia. In early 1960s, the cultivation of palm oil increased rapidly under the government programme to reduce the economic dependence on rubber and tin.

In addition, to reduce poverty for landless farmer and smallholder, government introduced the land settlement schemes for planting palm oil. Plantation provides job training to up the skill of workers with low education, and they also have access to free housing, telephones, health services, clean water, schools and places of worship. The oil palm plantations in Malaysia are largely based on the estate management system and smallholder scheme (MPOC).

Good agriculture practice can be used in palm oil industry to sustain the environment. Replanting can conserve and enrich the soil in a cycle from planting right through replanting. Erosion can be minimized through contour terracing and using silt pits to trap soil at steeper slopes to prevent soil degradation and conserve soil fertility. Besides that, planted species ground-hugging creepers in plantation area as cover crops can reduce the soil erosion, and other than that, to fix the nutrient in the soil, improve soil structure, recycle organic matter and reduce soil compaction. In order to minimize uses of chemical fertilizer, palm oil plantation can have used the natural fertilizers such as empty fruit bunches, old palm stems as source of fertilizer that contain nutrient for soil and also can be organic matter and humus.

Environmental friendly Malaysian palm oil can be developed by eco-friendly practices such as minimize herbicide use. Owner can spray the herbicides to small circle at the base of the palm oil so the weed is cleared naturally and save for animal to grazing. To ensure that the environment and biodiversity are not harmed by cultivation through the adoption of Good Agricultural Practices (GAP) is by implementation of integrated pest management (IPM), a process used to solve pest problem use pesticides by depending more on biological control by weeds and pests while minimize risks to environment and people, for example owls and snakes can check for rodents.

In addition, eco-friendly practices can be developed in Malaysian palm oil plantation by zero burning. Zero burning can be defining as practices in clearing the old stand during replanting and the old stand is left to decompose, therefore no air pollution from burning the old stand and create the clean environment. Decompose of old stand can recycle nutrient into the new. This practices also can save the budget to by fertilizer.

There are two types of smallholder in Malaysia, which are independent smallholders and organized smallholders. Independent smallholders are the individual, land owners who cultivate palm oil decide which crops to grow in their land, and how to manage it without direct assistance from any government, organization or any private company. Land owner selling their crop to local mill and replanting in small scale. According to Roundtable Sustainable Palm Oil (2010), owner can receive support or extension services from government agencies even though they are not bonded to any particular

mill or bodies. Aman et al. (2014) state that the average area of land owner by independent smallholder in 2013 was in Peninsular Malaysia, 3.2 hectares, 5.1 hectares Sarawak and Sabah, 6.7 hectares. Besides that, from 2003 to 2013, area cultivated for palm oil increased from 387,998 to 748 292 hectares (Hashim et al., 2014).

Organized smallholders is a community who cultivate palm oil with supported by government or plantation companies which provide finance, technical assistance, agriculture inputs, land, etc. Besides that, organized smallholder sell crop to the dedicate mills with mutual agreement. The example of organized smallholder is FELCRA (Federal Land Consolidation and Rehabilitation Authority) and FELDA (Federal Land Development Authority). FELCRA was formed in 1966 and tasked with development of privately owned idle land in an attempt to improve economic condition of largely rural Malays. The agency also opens new settlements and plantation for landless rural population. It was turned into a government owned by company Felcra Berhad in 1997.

FELDA that was form on 1st July 1956 under the Land Development Ordinance of 1956. The objective is to eradicate poverty through the cultivation of palm oil and rubber. FELDA only focused on ethnic Malays who form a majority of the Malaysian population (Aziz et al., 2012). According to Simeh & Ahmad (2001), the involvement of FELDA in palm oil started on 1961 with an initial area of 375 hectares. FELDA is known as the world's largest plantation operator, mainly across Peninsular Malaysia with 811,140 hectares, while less

presence in Sabah and Sarawak (News Straits Times, 2009). A total from 27,641 settlers, have 73 land schemes majority working on oil palm plantation which is 24,248 settlers and the rest working on rubber plantations. (Aziz et al., 2012).

1.2 Problem Statement

Forest has been converted into oil palm plantation and palm oil has become one of the most rapidly expanding equatorial crops in the world (FAO, 2007). Right now, industries palm oil mostly wants to have sustainable oil palm so that, they must to practice an environmental friendly such as zero deforestation, biodiversity maintenance, habitat of wildlife. This practices refers to plantation industries but not to organized smallholders because one of the factors is high cost to maintain this practices.

Palm oil that have certified is the best way to minimize the impact toward environment and social impact of unsustainable oil palm production. In 2013, 15% of the world's palm oil had been certified as sustainable and in 2011, 10% of palm oil had been certified as sustainable. Hence, to get the participation sustainable oil palm certification among organized smallholder, a survey conducted to determined organized smallholder's knowledge and attitude toward oil palm biodiversity and their willingness to participate with the sustainable palm oil certification. Thus, government agencies, FELDA organization and NGO's can take action on this problem to increase smallholders' knowledge on biodiversity conservation.

1.3 Objectives

- 1) To determine organized smallholders' knowledge and attitude toward biodiversity in palm oil farmland.
- 2) To determine organized smallholders' attitude and willingness to participate in sustainable palm oil certification.



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