UNIVERSITI TEKNOLOGI MARA

GIS-BASED OIL PALM ESTATE MANAGEMENT: ADOPTION OF INTERNET OF THINGS (IOT) TO IMPROVE YIELD

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AUTHOR'S DECLARATION

We declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of our own work, unless otherwise indicated or acknowledged as referenced work. This dissetation has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

We, hereby, acknowledge that we have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of our study and research.

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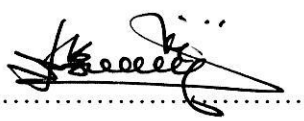

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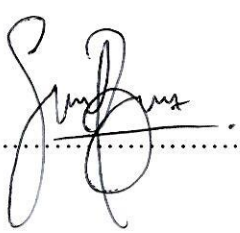

ABSTRACT

Palm oil is the most traded vegetable oils in the world due to its characteristic which produced higher oil yield compare with soybean and rapeseed. Oil palm industry in Malaysia started in 1970 after being converted into commercial crops after rubber. The government agencies like FELDA and SALCRA are among the pioneers in oil palm cultivation. However, the first phase of planting oil palm during this era fully depended on human force, manually done on the ground and adapted from the experiences of other pioneer plantation companies. This method of surveying the land for the cultivation of oil palm trees was ineffective, thus resulted in the difficulties of determining the dividend payment to the participants. This study, therefore, attempts to explore the GIS-based oil palm estate management and how it can assist SALCRA in dividend payment to their participants. The main objective is to provide the recommendation to SALCRA whether to adapt or not regarding the GIS technology. The finding revealed that application of GIS has impacted on the oil palm operation to be conducted in effective and efficient ways. As the GIS is new to the Sarawak agriculture industry and limitation of available fundamentals, hence further study with regards to this topic in Sarawak is needed.

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CHAPTER ONE
INTRODUCTION

1.1 Research Background

The palm oil industry has been recognized by the Malaysian government as a crucial part of its aspirations and goals in achieving Vision 2020. Various policies have been made to sustain and maintain the industry's position among world competition. The Malaysian government aims for the industry to be the world's largest oil palm producer, thereby leveraging economies of scale and hopefully becoming an efficient model for others to follow. Apart from that, the policies aim to enhance the investor's interest and tradability of the stock, as well as to create big number of stock in the agricultural market.

Sarawak is the second largest oil palm producer in Malaysia after Sabah. Annually, Sarawak produces an average of 3,800,000 tonnes of crude palm oil, contributing approximately RM 8 billion to the state's income (Wong, 2016). Generally, Malaysia's oil palm plantation comprises of areas owned by private companies or estates, government agencies and independent smallholders. According to a recent study, independent smallholdersclassified as oil palm planters with estate area of 40Ha and below play an important in the industry. Annually, they contributed 18% out of the total area for oil palm cultivation in the country (Kushari, 2016).

In Sarawak, the agriculture sector started to grow as early as in 1903 with a purpose to strengthen security and stability rather than making profit (Joseph, 2002). Agriculture was then designed to move away Iban fallow-rotation cultivators from the border of Sarawak-Kalimantan during the Indonesia confrontation against Malaysia from 1963 to 1966 (Joseph, 2002). The plantation sector in Sarawak started to actively develop in the 1970s through an initiative by the state government which focused on raising the income of the rural community.