ANALYSIS OF PADDY PRODUCTION REDUCTION USING REMOTE SENSING AND GIS IN KEDAH

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Final Year Project Report Submitted in Partial Fulfilment of the Requirements for the Diploma in Geospatial Technology in the College of Built Environment Universiti Teknologi MARA

JULY 2024

ABSTRACT

Applying GIS and Remote Sensing to Determine the Factors Effecting Paddy Production Reduction in Kedah, Malaysia

Paddy reductions reduction in Kedah, Malaysia, represent an important risk to regional food supplies and the economy of agriculture. This study uses advanced remote sensing and Geographic Information System (GIS) technology to analyze the factors that have led to this reduction. The goals of this research are to use GIS to identify the factors causing paddy production reductions, to apply Kriging for predicting changes in rainfall patterns, and to create soil maps that support methods for sustainable farming. Remote sensing was implemented to detect land use changes, showing the impacts of development growth and agricultural change. Random Tree Classification in ArcGIS was used to monitor these land use changes all through time. Kriging interpolation was used to create comprehensive rainfall pattern maps, which revealed changes in rainfall which impact paddy fields. Detailed soil maps were created for measuring soil quality and its effects on paddy production. This study examined the land use changes in Kedah for the years 2018, 2019, and 2020. The findings from remote sensing demonstrated that agriculture areas have a significant drop by 2,041 km² to 1,280 km², for 2019 – 2020. However, in the same years, the area of cleared land has risen from 1,042 km² to 2,047 km². The results of this study provide important information that could help in the development of future sustainable planning and management, as well as help governments in making analysis to enhance environmental and natural conditions.

ACKNOWLEDMENT

In the name of Allah, the Most Gracious, the Most Merciful. Praise Him the Almighty that in His will and given strength, I am able to finish the dissertation for Final Year Project. Special thanks to my supervisor, Sr. Gs. Mohd Najib bin Husain, for the explaining supervision and countless hours spent sharing his extensive knowledge and useful support during the carrying out of this project. Furthermore, his consistent assistance and guidance from beginning to end helped me to complete the project successfully.

Furthermore, a million thanks to Universiti Teknologi MARA and Department of Built Environment for providing students with valuable skills and excellent theoretical as well as practical work throughout the study period.

Finally, we thanked our parents, and family and friends for their support, motivation and constructive advice. Thank you and may Allah bless all of you.

Thank you.

Muhammad Adib Farhan Bin Azman Ilhan Arif Bin Juaini

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CHAPTER 1

INTRODUCTION

1.1 Overview

This chapter covers the project's introduction, that includes the background of study, problem statement, objectives, and scope of study. It begins with an overview of paddy production reduction as the study background and then goes on to describe every factor involved in the study area of Kedah, Malaysia. The study focuses on developing land use changes, rainfall patterns, and soil maps by implementing Geographic Information System (GIS) and Remote Sensing.

1.2 Background of Study

The reduction of paddy production in Malaysia has dropped significantly in majority of the states that produce paddy for national supply, threatening national food security. From The Strait Times news, it has stated that the erratic weather or the climate change has kept paddy farmers on guard and the shortage of supply of paddy seeds has resulted in increasing price of the seeds. The strait times has