UNIVERSITI TEKNOLOGI MARA

LANDSLIDES SUSCEPTIBILITY USING FUZZY LOGIC APPROACH AT KG IBOI, BALING, KEDAH

MOHD ASHRAF BIN AHMAD ZUBIR

BACHELOR OF SURVEYING SCIENCE AND GEOMATICS (HONOURS) - AP220

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MOHD ASHRAF BIN AHMAD ZUBIR

Thesis submitted in fulfilment
of the requirements for the degree of
Bachelor of Surveying Science and Geomatics (Honours)

College of Built Environment, CBE.

AUTHOR'S DECLARATION

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

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Under - Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Mohd Ashraf Bin Ahmad Zubir
Student I.D. No.	:	2020612458
Programme	:	Bachelor of Surveying Science and Geomatics – AP220
Faculty	:	College of Built Environment, CBE
Thesis Title	:	Landslides Susceptibility using Fuzzy Logic Approach at Kg Iboi, Baling, Kedah.

Signature of Student	:	…………………………………………..
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ABSTRACT

In numerous regions of Malaysia, the challenge of landslides poses a significant impediment to development efforts. Historical shortcomings in evaluating potential issues related to land use planning and slope management have resulted in frequent instances of damage and loss (Pradhan, 2011). The primary cause of landslides in Malaysia is heavy rainfall, whereby gravitational forces induce deformation of materials on slopes. To address these concerns, a pioneering approach involving Machine Learning and Geographic Information Systems (GIS) has been adopted to enhance image recognition capabilities. By harnessing advanced technological instruments, this endeavour aims to accurately identify and monitor slope failures. The focal point of this study is Baling, Kedah, where the ultimate objective is to proactively avert potential landslide tragedies. The primary goals encompass delineating areas susceptible to landslides through fixed wing imaging and analysing image data through the fuzzy logic machine learning. The methodology undertaken begins with the processing of fixed wing imagery and subsequent image recognition data acquisition. This process further extends to data processing for image recognition, culminating in the evaluation of the efficacy of the fuzzy model algorithm. The undertaking of this project not only advances the realm of landslide studies but also demonstrates the utilization of cutting-edge technologies. By facilitating efficient problem-solving, these approaches contribute to expediting project timelines while simultaneously enhancing their cost-effectiveness and overall quality.

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