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IDENTIFICATION OF DANGER ZONES FOR FLOOD EVENT IN PERLIS, MALAYSIA

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SCHOOL OF GEOMATICS SCIENCE AND NATURAL RESOURCES
COLLEGE OF BUILT ENVIRONMENT
UNIVERSITI TEKNOLOGI MARA MALAYSIA

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Thesis submitted to the Universiti Teknologi MARA Malaysia in partial fulfilment for the award of the degree of the Bachelor of Surveying Science and Geomatics (Honours)

JULY 2024

DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA (UiTM). This project/dissertation is original and it is the result of my work, unless otherwise indicated or acknowledged as referenced work.

In the event that my project/dissertation be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree of the Bachelor of Surveying Science and Geomatics (Honours) and agree be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

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I certify that I have examined the student's work and found that they are in accordance with the rules and regulations of the School and University and fulfils the requirements for the award of the degree of Bachelor of Surveying Science and Geomatics (Honours).

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ABSTRACT

Flooding is caused by a variety of circumstances, including a lot of rain, quickly melting snow or ice, storm surges from hurricanes or typhoons, and overflowing rivers or dams. In Perlis, long and heavy rainfall are frequently the cause of flooding. There are several method can be used to identify danger zones including Analytical Hierarchy Process (AHP). This study has employed geospatial techniques of AHP approach using the pairwise comparison technique to analyze several factors that are vulnerable to flood while the weighted overlay of a Geographic Information System (GIS) based technique takes into consideration the relative importance of parameters and the class associated with each parameter to produce a flood hazard map of the study area. However, several factors were selected which were slope, elevation, Topographic Wetness Index (TWI), rainfall, and Land Use Land Cover (LULC). The final results also produced a comprehensive flood hazard map of Perlis in 2023 using QGIS Desktop 3.36.2 and the resulting map was divided into five classes from very low, low, moderate, high, and very high risk zones. It is concluded that the use of GIS to analyze the regions that are vulnerable to flood has yielded important information about those areas in Perlis.

Keywords: Analytical Hierarchy Process (AHP), Geographic Information System (GIS), Flood, Perlis.

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