ESTIMATION OF FLOOD HAZARD AREA IN TEMERLOH, PAHANG MALAYSIA BY USING GEOGRAPHIC INFOMATION SYSTEM APPROACH

MUHAMMAD BIN KASHFI
MUHAMMAD ADAM IRFAN BIN SABARUDIN

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ABSTRACT

Floods are a continuous problem in Malaysia, particularly in Temerloh, Pahang, where yearly monsoon rains often cause considerable flooding throughout the region. The primary goal of this project is to create a detailed flood hazard map using ArcGIS Pro and a variety of spatial analytic tools to appropriately analyze flood risk in the Temerloh district. The project combines secondary data from trustworthy sources such as the USGS, My Met Malaysia, and NASA Power, which is complemented by custom-created shapefiles adapted to certain geographical features. Key analytical tools used include ArcGIS Pro's is hydrology toolbox, which is used to generate essential datasets such as river distance flow length, slope analysis, DEM (Digital Elevation Model), land use classifications, rainfall distribution patterns, and comprehensive river distance and flow length calculations. These datasets are combined using weighted summary approaches to create the final flood danger map for the project region.Furthermore, the methodology used in this study makes it easier to acquire and preprocess data from a variety of sources, including government organizations and media portals. Geospatial analysis tools built into Geographic Information Systems (GIS) are critical for efficiently detecting and designating flood-prone areas in Pahang's Temerloh district. This study intends to improve understanding of flood dynamics, strengthen disaster preparedness efforts, and contribute to long-term urban planning and infrastructure development practices in flood-prone areas by utilizing advanced GIS capabilities.

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INTRODUCTION

1.0 INTRODUCTION

Pahang, the largest state in Peninsular Malaysia and the third largest in the country, is known for its diverse landscape and rich cultural heritage. Its capital, Kuantan, serves as a bustling hub for the state's growing industrial and service sectors, supported by the strategic Kuantan Port. Pahang's economy is multi-faceted, with major contributions from agriculture, mining and tourism. The state is a major producer of palm oil, rubber, cocoa, and tropical fruits, as well as housing valuable deposits of gold and iron ore. Tourist attractions such as Cameron Highlands, Genting Highlands, Taman Negara (National Park) and Cherating Beach attract visitors with their natural beauty and amazing recreational opportunities.

Malaysia's state of Pahang contains the Temerloh district. With a total area of about 2,956 square kilometers, it is separated into a number of smaller districts, such as Mentakab, Kuala Krau, and Lanchang. Temerloh is renowned for its agricultural pursuits, particularly for the cultivation of rambutan, durian, and pomelo. The Pahang River, which flows through the district and supplies water for fishing and farming, is another feature of the area. Temerloh is a combination of rural and urban districts, with the town center acting as the core of administrative and business activity. With a train station at Mentakab and the East Coast Expressway passing through the region, Temerloh has excellent road and rail