FLOOD MAPPING DASHBOARD IN SELANGOR FOR 2021 AND 2022

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ABSTRACT

Flood Mapping Dashboard in Selangor

Flooding is defined as an overflow of significant amounts of water caused by excessive rain and insufficient drainage systems. The dashboard employs Geographic Information System (GIS) technology to provide a comprehensive and user-friendly platform for visualising flood-prone areas. This project seeks to develop a flood mapping dashboard in Selangor for 2021 and 2022. The information was provided by *Jabatan Pengairan Dan Saliran Malaysia, Alam Sekitar, and Perubahan Iklim*. The data is processed and analysed using the Inversed Distance Weighted (IDW) methodology. The product is a dashboard with an interactive map and information on the flood shown in a variety of ways. The dashboard offers a user-friendly platform for visualising flood-prone areas. This research uses a mix of historical flood data and meteorological information to provide accurate flood maps. As a result, we will be able to determine which areas have the greatest floods and investigate the causes.

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TABLE OF CONTENT

CHAPTER 1

INTRODUCTION

1.1 Background Study

In recent years, natural disasters have become more prevalent owing to environmental degradation, climate change, population growth, and inappropriate land use practices (Dano et al., 2019). Floods are one of the most devastating natural disasters, causing widespread damage to property, infrastructure, and loss of life. (Dano et al., 2019). While floods in a river system cannot be fully prevented, their impact on human activities can be mitigated in areas prone to flood hazards. The challenge of flood prevention is to provide an acceptable level of protection through physical infrastructure combined with alternative risk reduction measures against the most severe floods (Samuels & Wallingford, 2000).

A geographic information system (GIS) is an orderly assemblage of computer-based hardware, software, geographically referenced data, procedures, and human resources configured to handle all forms of spatial data to meet the geographic information needs of a user (Okoye & Ojeh, 2015). GIS has a wide range of application areas, including topographic base mapping, socio-economic and environmental modelling, global (and interplanetary) modelling, and education. These applications typically aim to fulfill the five key functions of GIS: mapping, measurement, monitoring, modelling, and management (Okoye & Ojeh, 2015). Flood mapping is a crucial tool for understanding flood risks. A flood mapping dashboard is a digital application that helps people visualize where floods are expected to occur, their potential severity, and the affected areas. These dashboards display maps showing not only rivers, lakes, and streets, but also flood-prone locations, particularly after heavy rains or rapid snowmelt. The dashboard predicts where water will rise and spread based on data from weather reports, historical flood records, and river water levels. It functions similarly to a weather prediction, but focused specifically on floods.