

Simulation of Flood Inundation in Kedukan River Using HEC-RAS and GIS

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Abstract : Kedukan River is an artificial river which serves as a Watershed Boang drainage channel in Palembang. The river has upstream and downstream connected to Musi River, that often overflowing and flooding caused by the huge runoff discharge and high tide water level of Musi River. This study aimed to analyze the flood water surface profile on Kedukan River continued with flood inundation simulation to determine flooding prone areas in research area. The analysis starts from the peak runoff discharge calculations using rational method followed by water surface profile analysis using HEC-RAS program controlled by manual calculations using standard stages. The analysis followed by running flood inundation simulation using ArcGIS program that has been integrated with HEC-GeoRAS. Flood inundation simulation on Kedukan River creates inundation characteristic maps with depth, area, and circumference of inundation as the parameters. The inundation maps are very useful in providing an overview of flood prone areas in Kedukan River.

Keywords : flood modelling, HEC-GeoRAS, HEC-RAS, inundation map

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