

ABSTRACT

Tenggang River is in the east side of Semarang city. Every year, the flood always occurs, because of the high rainfall and the sea level rise (high tide). Thus, the evaluation of flood risk reduction is needed to reduce the urban and coastal flood around that area.

The objective of this research aims to evaluate the current flood condition and propose alternative flood mitigation and also compare the result that got from Ministry of public work to research study. To reduce the flood risk to the people in that area we need to evaluate the flood problem. Rainfall data has been used to analyze hydrology, and it will develop to design flood discharge. Flow hydrograph for input at the upper stream was calculated by Rational method with flood design input as 25 years return period. Geometry data has been used for hydraulic analysis which was done by HEC-RAS software version 5.0.3.

From the output result, it can be concluded that, the simulation concludes that improved channel condition by normalization the riverbed and levee can solve flood inundation at Tenggang river with design flood return period $Q=119 \text{ m}^3/\text{s}$. The result of simulation show that the result of hydrologic-hydraulic modeling is acceptable if compare to the report from Ministry of public work at Semarang city.

Keywords: Flooding, simulation, urban and coastal flood, normalization, levee