Abstract

Study of Flood Occurrence Changes Due to Increased Capacity of Angke Tributary (Case Study of Cluster Nusa Indah Loka Area, South Tangerang)

Adhie Pahlawan [1)], Tri Nugraha Adikesuma[2)]

[1)] Student of Civil Engineering Department, Universitas Pembangunan Jaya
[2)] Lecturer of Civil Engineering Department, Universitas Pembangunan Jaya

Flooding from the overflowing Angke River is affecting numerous areas, including the Nusa Indah Loka cluster. The purpose of this study is to investigate how the Angke River's cross-sectional capacity might affect the degree of flood threat. If there are flooding issues in a certain location, solutions must be found. The purpose of this study is to evaluate cross-sectional capacity in order to identify practical countermeasures. Hydraulic analysis utilizing the HEC-RAS 1D-2D coupled model and flood discharge with return periods of 25, 50, and 100 years is the methodology employed in this study. Data on sedimentation rate are added to ascertain the extent to which sedimentation affects cross-sectional capacity. The simulation's results reveal disparate outcomes. The simulation results vary depending on which scheme is added. The scheme with the addition of a 2-meter embankment is the most effective because it prevents flooding during the 25-year return period and overflows with a discharge of 9.8 m^3/s and 11.3 m^3/s during the 50- and 100-year return periods. If the extra embankment is more than two meters, more research on the structural efficacy and cost is required.

Kata Kunci: Mitigation, HEC-RAS 1D-2D Coupled Model, Cross-Sectional Capacity, Return Period, Flood.

Pustaka : 16

Tahun Publikasi : 2014 - 2024