

FLOOD ANALYSIS USING HEC-RAS 5.0 SOFTWARE

(Study Case in Watershed Cisadane C 107 – C 66)

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ABSTRACT

Flooding is an event of overflowing river water over the container that flows it, this event can occur on any river. One of them is the Cisadane River, which is the largest river in Banten Province. With a river length of 79.6 km² and an area of 1375.43 km² it does not make the Cisadane River able to withstand existing river discharge. In 2014 there was a flood in the lower cisadane river.

The aim of the research is to analyze the current conditions whether the cisadane river, especially the downstream cisadane watershed segment, is capable of accommodating existing river flow discharge with a 50-year return period and providing solutions in the event of a flood. This study uses rainfall data obtained for 18 years, Cisadane watershed map, cross-sectional images and extending the Cisadane river. Analyzing the watershed area rain, frequency analysis, planned rain analysis, and calculation of planned flood discharge with Snyder HSS and Nakayasu HSS. Then reviewed 51 cisadane river sections using HEC-RAS software

The results showed rainfall of 287.438 mm and flood discharge Q₅₀ of 2480.569 m³ / sec where in all locations it could not accommodate the planned flood discharge. Flood handling efforts that can be carried out in the short term are by normalizing the river channel and building embankments so as to produce an average water level reduction of 33.691 percent or 2.573 m. For the long term, efforts to conserve land in watersheds, eco-hydraulics, regulations and their maintenance are necessary.

Keywords: Flood Analysis, HSS Snyder method, HSS Nakayasu method, HEC – RAS 5.0