

KAJIAN REHABILITASI TANGGUL KRITIS SUNGAI WULAN DI KABUPATEN KUDUS SEBAGAI UPAYA MITIGASI BENCANA BANJIR

Suryadarma Hasyim

14569/PS/MPBA/04

Telah dipertahankan di depan Dewan Penguji
Pada tanggal 28 April 2006

Pembimbing Utama

Prof. Dr. Ir. Sri Harto Br, Dip.H

Pembimbing Pendamping

Dr. Ir. Istiarto, M.Eng

Anggota Dewan Penguji Lain

Dr. Ir. Rachmad Jayadi, M.Eng

ABSTRACT

Wulan river is the downstream part of Serang river which is located at the downstream of Wilalung flood regulator gates. This river is located in Kudus regency, Central Java. Although it has been equipped with a number of flood control structures, such as Kedungombo reservoir in the upstream and floodway and dike in the downstream, floods still strike the area around the river plain. The loss that is caused by the floods (especially the financial losses) are huge because of the destruction of public facilities, fishpond area, and farm field.

The purpose of this study is to know the maximum water surface level that occurs in Wulan river caused by 100-year return period flood, and also to know the influence of the maximum water surface level toward the existing dike top elevation along the river. Flow simulation was performed by HEC-RAS software version 3.1. Input of water flow used in modelling are flood (discharge) hydrograph as an upstream boundary condition, stage hydrograph (in estuary of Wulan river) as a downstream boundary condition, and lateral inflow hydrograph from Gelis river as an internal boundary condition. Hydraulic structures used in modelling are Goleng side spillway and SWD. 1 floodway. After knowing the maximum water surface level at each river cross section along the river, further analysis will be performed to estimate the ideal dike top elevation so that it capable to accomodate discharge for 100 year-return period flood (Q100).

Result in this study shows that almost the entire dike top elevation existing along Wulan river is not appropriate to design discharge for 100-year return period flood with the result that it is necessary to be increased by a range from 0,012 m to 1,888 m.

Keywords: *Flood in the river, HEC-RAS model, Dike top elevation.*