STUDI BANJIR BENGAWAN SOLO 2007 UNTUK PENINGKATAN KINERJA MITIGASI BENCANA BANJIR (STUDI KASUS PADA ANAK-ANAK SUNGAI BENGAWAN SOLO ANTARA BENDUNG COLO DI SUKOHARJO DAN JURUG DI SURAKARTA)

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ABSTRACT

In the upstream areas of Bengawan Solo River Basin in Surakarta and surrounding on the late of December 2007, great flood occurred causing more ten thousands people suffered and thousands houses flooded. Based on a result of evaluation on the flood, it can be concluded that no optimal mitigation effort done before was one of the underlying causes of the great natural disaster. To improve the programs and activities of flood mitigation in the future, a flood reconstruction is necessary for finding out a flow discharge of the tributaries as response of the catchment area to rains in the upstream areas of Bengawan Solo between Bendung Colo, Sukoharjo, and Jurug, Surakarta, so identification of the region/location priority controlled on the base of flood criticality due to flood can be done.

The flood reconstruction was done by using a rainfall-runoff simulation of the catchment system for finding the response of the catchment area. Identification of the critical region/location was carried out by comparing differences between rainfall and discharge at the flood on 2007 and those on 1966. The simulation was done by using the HEC-HMS software version 3.2.

The study indicated that flood occurred in the upstream Bengawan Solo River on December 2007 was because of insufficient flow capacity of 1,500 m3/s being less than peak discharge of 2,075 m3/s. Most contributions of flood were 39% from Dengkeng River and 27% from Samin River. Flooding was observed in Wingko River, Samin River, and Jlantah River. It was due to dike failure and insufficient flow capacity. The study has identified critical flood location in flood areas of Samin Rivers' junction, Dengkeng Rivers' junction, Jlantah Rivers' junction, and Premulung River' junction. The critical catchment areas were Dengkeng catchment area, Samin catchment area, Jlantah catchment area, and Wingko catchment area. Mitigation efforts consist of increase of preparedness to cope with flood disaster, regulation of settlement, gradual resettlement, or relocation of all settlement located at critical flood location, the regulation and control of settlement spatial plan or the regulation and control of land utilization pattern at critical catchment area depend on critical value.

Keywords:
flood, reconstruction, identification, and mitigation