



ABSTRACT

The overflowing discharge of Bogowonto River in Purworejo Regency, Central Java flooded the surrounding area during the rainy season. A huge amount of losses such as damage of infrastructures, housing, and agricultural area occurs every year. According to previous flood events and researches, the downstream area is the most physically and economically affected area from flood in Bogowonto River. This research mainly aim to develop flood hazard map and study the characteristics of flood in the study area.

There are two main analysis; hydrologic and hydraulic, to model a flood event. Hydrologic and hydraulic modelling of flood based on 20 and 50-years return period hydrograph along the river geometry is done using the latest HEC program namely HEC-HMS 4.1 and HEC-RAS 5.0. Also, ArcGIS 10.3 is used as a terrain pre-processor and post-processor for hazard mapping.

The results of this research are flood hazard maps for 20 and 50 years flood and its comparison to the recent major flood events. Flood inundation modelled covered an area of 993.77 Ha and 1,175.86 Ha, with maximum discharge calculated at Boro Weir as starting point are 1,206.2 m³/s and 1,397.3 m³/s for 20 and 50 years flood case respectively.

Keyword: Flood, Hazard Mapping, Floodplain Mapping, HEC-RAS.