

KAJIAN DEBIT BANJIR SUNGAI LUSI PROVINSI JAWA TENGAH

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Telah dipertahankan di depan Dewan Penguji
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ABSTRACT

As one part of the Serang Lusi Juana (Seluna) River System, Lusi River is one the big rivers that contributes to flood event on the down stream part of the system. To cope with the flood problem occurred on Seluna River System contributed by Serang River, Kedungombo Dam has been constructed on the upstream part of Serang River. However, flood discharge contributed by Lusi River, which covers 2.100 km² of catchment area, cannot be controlled.

By calculating the Lusi River designed flood discharge, the flood discharge contribution of Lusi River to the Seluna River System can be predicted. Being an ungauged catchment, designed flood hydrograph for Lusi River is determined using the synthetic unit hydrograph approach. The synthetic unit hydrograph Gama I is employed in this study. To distribute the designed daily rainfall into hourly rainfall units to be applied in flood hydrograph calculation, hypothetical rainfall distribution is used by employing the Alternating Block Method (ABM) and Tadashi Tanimoto methods for several floods returning period.

The designed flood discharge applied for the calculation is the results of the ABM. Rainfall distribution based on the two daily rainfall data. The results of designed flood discharge under this method show 748 m³/sec for 2 years returning period, 1.036 m³/sec for 50 years returning period, 1.097 m³/sec for 100 years returning period, and 1.158 m³/sec for 200 years returning period. Lusi River 96% flood discharge contribution to the Seluna River System is 1.200m³/sec, which is obtained at the Q₂₀₀ designed flood discharge in Klambu Weir.

Keywords:

Flood Discharge, Synthetic Unit Hydrograph, Hypothetical Rainfall Distribution, Design Discharge.