

PENGARUH PERUBAHAN TATAGUNA LAHAN TERHADAP PUNCAK BANJIR PADA DAERAH ALIRAN SUNGAI CISARANTEN DI KOTA BANDUNG

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ABSTRACT

Cisaranten River empties in Cikeruh River. The central part of the river flows through an area that will be developed into an urban area to the East of Bandung City that is Gedebage area. Cisaranten River is potential, thus causing flood in Gedebage area that result from the destruction of hydrological function. The destruction of the hydrological function mostly results from the conversion of land in Cisaranten basin, the conversion of water absorbing area into building area (residences, industries, roads and other facilities), so water absorption gets lower and lower. Rehabilitating Cisaranten basin by means of reforestation and the rearrangement of land use is necessary to overcome the problem. To handle it effectively, there should be an analysis on the effect of rearranging the method of making use of land on the peak discharge at Cisaranten River.

The analysis is restricted to the effect of rearranging the method of making use of land on massive flood resulting from rainy event (single event), through the scenario simulation of change of land use, converting field, rice field and varied farming land into either protected forest or residence. To predict the scale of the peak discharge at Cisaranten River, model hydrological ANSWERS (Areal Nonpoint Source Watershed Environment Response Simulation) is applied. Simulation on the method of making use of land in 2004 used the scale of daily rainfall basin of eight which each had the scale of 5, 15, 25, 35, 45, 55, 65 and 75 mm and the simulation on the various scenarios of change of land use, the scale of daily rainfall basin used was 65 mm. The rain distribution used was measured one and Tanimoto rain distribution.

The results of the simulation shows that the conversion of rice field, field, and varied farming land into either protected forest or residences has an effect on peak discharge at Cisaranten River. Analysis on the results of the simulation shows that extending the residence of 5% may increase the peak discharge of 2.35%, and extending the protected forest of 5% reduce peak discharge of 6.79%. Extending the area of protected forest makes time concentration (Tc) more longer. On the contrary extending the area of residences makes time concentration more shorter.

Keyword : *ANSWERS model, time concentration and protected forest.*