

Run Off Analysys as The Effect of Land Use Change at Upper Sinamar Watershed,  
Lima Puluh Kota Region

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ABSTRACT

Sustainable agriculture development is beeing the global issue to care the nature sustainability for the future.

This study aimed to make the landuse map of Sinamar Watershed especially upper cathment area, analyze the landuse change from 2009 to 2018 and calculate the flood caused the landuse changed.

The method included : 1) make the thematic map of soil, map of landuse change on year 2009 and 2018; 2) analyze of CN (curve number) and C (run off coefficient) based on landuse map, hydrologic soil type, area of every land cover, weighting of CN and C factor, identification of I (rainfall intensity), calculation of run off volume and peak discharge.

The conclusion of research are : 1) landuse changed from 2009 and 2018 included : forest decrease from 22.867 ha to 7010 ha, bush increased fram 540 ha to 3063 ha. Rice field increased from 14.445 ha to 27.886 ha; settlement increased from 447 ha to 1.193 ha; water body decreased from 115 ha to 75 ha; and opened area increased from 77 ha to 222 ha; 2) as the effect of landuse change is increasing of volume runoff (V)=5.3% and increase of peak discharge (Qp)=13.5%.

The recommendation to decrease the V and Qp are : 1) the reforestry of bush and covered land; 2) intensification of farmer extensification; and 3) building the checkdam.

*Keyword : watershed, landuse, wateryields volume, CN method, rational method*

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