

**ESTIMATION MAXIMUM DEBIT OF SURFACE RUNOFF BY USING
RATIONAL METHOD FOR WATER CONSERVATION PLAN
(Case Study of Kedunglarangan Watershed, Pasuruan, East Java)**

ABSTRACT

Research about maximum debit of surface runoff is important to do because surface runoff that high would make: (1) decreasing underground water (2) flood because magnification of river debit (3) degradation of soil fertility. The objective of this study were (1) calculate maximum debit of surface runoff in each set of land by using rational method (2) determine instruction conservation plan at area which maximum debit of surface runoff were over tolerance in Kedunglarangan watershed, Pasuruan district, East Java province

This research was done with survey method by determination of observation point and took samples used purposive sampling method, laboratory analysis, and mathematical calculation. Parameters which ware used in this study were surface runoff, infiltrate, soil teksture, slope, and land cover. Maximum debit of surface runoff was gotten with rational method which represents function of coefficient value of surface runoff, rain intensity, and wide of measurement region.

Base on results of research, estimation maximum debit of surface runoff that biggest is 469.8 m^3 /hour that was happened in set of land rice field with soil type is entisol and slope 0-3%. Estimation maximum debit of surface runoff that smallest is 0.2 m^3 /hour that was happened in set of land settlement with soil type is inceptisol wet and slope $> 25\%$. Beside that base on results of studi were, if slope more and more high so surface runoff more and more high too, if soil infiltration is small so make surface runoff become high, and biggest surface runoff happened at concreted land like settlement, while land that did not be concreted to have small surface runoff. Water conservation plan in this location base on land cover with use water conservation technology those are *terasering* with slope in method and diffusion channel for garden land, diffusion well and *biopori* for settlement, and plant trees with mechanism processing of land become *terasering* so able to interspers with plants that have the high price, whereas conservation for rice field by water managemen that is alternate wetting and drying.

Key words: surface runoff, rational method, water conservation plan