

***SOIL INFILTRATION RATE IN THE EAST JIWO HILLS
BAYAT DISTRICT, KLATEN REGENCY***

By : Hestu Dhea Amanda
Supervised by : Dyah Arbiwati

ABSTRACT

East Jiwo Hills is located in Bayat District, Klaten Regency and has complex geological conditions. The differences in parent materials in the East Jiwo Hills influence differences in the physical properties and characteristics of the soil formed as a result of the weathering process, thereby influencing infiltration rates. The aim of this research is to determine the infiltration rate in the East Jiwo Hills, Bayat District, Klaten Regency. The method used is the survey method. The creation of a Land System Map was obtained from the results of overlaying the Land Use Map, Slope Map, and Soil Type Map to obtain 13 land systems. Determination of soil sample points was carried out purposively for each land system with one land system determining 1 sample point resulting in 13 sample points. Determination of the infiltration rate using the Horton Method and direct measurements in the field using a double ring infiltrometer with an inner ring diameter of 15 cm, an outer ring diameter of 30 cm, and a height of 12 cm. The parameters used in this research are infiltration rate, soil texture, soil organic matter, soil bulk density, soil particle density, soil permeability, soil porosity, and slope. The research results show that the infiltration rate in various land uses has different values. In the forest land use the infiltration rate value is 1,38 – 15,57 cm/hour (slightly slow – Fast); open land 1.57 cm/hour (slightly slow); rice fields 0.61 cm/hour (slightly slow); moor 0,78 – 21,46 cm/hour (slightly slow – fast). In addition, the infiltration rate for the same land use and slope, the steeper the slope, the lower the infiltration rate value. The most influential factors on infiltration rate in East Jiwo Hills are soil organic matter, soil bulk density, soil porosity, and soil permeability.

Keywords: Infiltration Rate, Land Use, Physical Properties of the Soil