A STUDY ON THE TREND OF CHANGE ON HYDROLOGY CHARACTERS IN KEDUANG SUB WATERSHED WONOGIRI , JAWA TENGAH

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ABSTRACT

The unbalance size among the number of population, farming land, and settlement area encourage people to clear away the forests and converse unproductive land into farming area. The activities of forest logging, forest clearing, and land management that ignore the principles of soil conservation have increased the run off coefficient and the quantity of rainfall which becomes run off; and thus increase the stream flow. The effect of these activities is the damage on the vegetation and soil components in a watershed which subsegmently change the hydrology characters.

This research aims at knowing the trends of annual run off coefficient change, river regim coefficient, and the mean of monthly-suspended discharge. Annual run off coefficient is calculated based on the amount of direct run off over the year divided by the amount of rainfall on that year. The number of river regim coefficient is obtained through a comparrison between the maximum and the minimum discharge. The mean of monthly-suspended discharge is calculated by dividing the monthly-suspended discharge and the amount of the day on that month. The trend analysis method is used to analyse the result of calculation from the tree characters.

Based on that analysis method, the result shown that annual number of run off coefficient tended to decrease in Keduang Sub Watershed. In 1991 – 1993, the number of run off coefficient ranged from 0,896 – 0,916. The number of run off coefficient began to decrease from 0,044 – 0,112 in the year of 1994 – 2000. The number of river regim coefficient ranged from 1357,960 – 2391,368 in the year of 1991 –1993. In 1994 –2000, its had decreased with the number ranged from 8,983 – 141,278. The mean of monthly-suspended discharge tended to decrease. The number ranged from 0,06-235,806 kg/sc in 1991. In 1992, the number ranged from 0,008 – 76,068 kg/sc; in 1993, the number ranged from 0,209 – 1862,009 kg/sc; in 1994, its ranged from 11,295 – 62,617 kg/sc; in 1996, its ranged from 0,552 –12,179 kg/sc. In 1997, the number ranged from 0,552 –12,179 kg/sc; in 1998, its ranged from 19,968 – 119,930 kg/sc; in 1999, its ranged from 14,932 – 107,103 kg/sc, and in 2000, its ranged from 1,157 – 10,784 kg/sc. The decreasing trend from tree characters mentioned above is caused by the effort of conservation and land rehabilitation in the form of reterracing, small reservoir, big gullyplug, small gully plug, reforestation, and community forest.

Key words : run off coefficient, river regim coefficient, suspended discharge, trend analysis