

KAJIAN PENGARUH EROSI LAHAN TERHADAP SEDIMENTASI WADUK CIRATA JAWA BARAT

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ABSTRACT

Cirata reservoir is one of the reservoirs that were built on the Citarum watershed. The main purpose of the Cirata reservoir water utilization is hidro electing power product with installed capacity of 1,008 MW. Cirata reservoir is now producing electricity on average per year by 1,426 GWh, so the reservoir is a prime generator of Java and Bali. As happened in many reservoirs in Indonesia, Cirata reservoir also have problem to settle to the high accumulation of sedimentation in the reservoir. Based on the measurement of sedimentation in 2007, the volume of sediment deposited during the period of 20 years amounting to 146 million m³, equivalent to surface soil erosion across the surface of local watersheds Cirata of 3,96 mm. This figure shows erosion that occurred in Cirata reservoir catchment area is beyond the tolerance limit of erosion design of the reservoir. This study aims to determine the influence of land use change the age of service reservoirs Cirata.

In this research, secondary data processing by overlaying thematic maps such as soil erosivity map, a map of soil erodibility, slope class maps and land-use map using geographic information system-based vector. The process of overlaying the maps obtained parameters used in the empirical method of predicting erosion by USLE (Universal Soil Lost Equation). To predict the amount of erosion that goes into the reservoir, calculate the ratio of Sediment Delivery Ratio (SDR). And, to predict the service life of the reservoir age of the sediment distribution analysis with empirical area reduction method.

The results of this study indicate that the erosion in the reservoir catchment area Cirata based on land use in 2008 amounted to 16,426,975.29 tons/year, assuming soil particle density of 1.65 ton/m³, then the amount is equivalent to the erosion of surface soil thickness 5.61 mm/year. The value of SDR based on the bathymetry of land 2007 amounted to 0.733. Service life prediction, based Cirata reservoir storage capacity is 70 years dead, and reviewed the distribution pattern of sedimentation with the empirical area reduction method suggests that reservoir sedimentation Cirata will experience the intake after the 158-year-old dam.

Key words: *erosion prediction, USLE, sedimentation*