

KAJIAN SEDIMENTASI WADUK BATUJAI KABUPATEN LOMBOK TENGAH NUSA TENGGARA BARAT

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ABSTRACT

The building of Batujai dam was a realization of the use of the potential water of Petitik, Benawa, and Surabaya rivers, with regards to the development of the irrigation areas, flood control, and power generation. The problem faced by Batujai dam is the sedimentation originating from the land surface erosion that may influence the reservoir capacity, which ultimately can affect the in-service age of the dam.

Therefore, it is necessary to study the sedimentation of Batujai dam. An analysis of the land surface erosion rate was carried out by employing the USLE (Universal Soil Loss Equation) formula and performing an analysis on the distribution of the sediment using the empirical area-reduction method. The result shows that the total 20 years sedimentation was $1.635 \times 10^6 \text{ m}^3$ or of $6.30 \times 10^3 \text{ m}^3$ per year.

The sediment distribution was of Type I. The elevations of the dam base after 30, 40, and 50 years in service were +83.90 m , +84.70 m, and +85.30 m, respectively. In reference to the elevation of +85.00 m, it was predicted that the maximum age of the dam should be 41 years. The land surface erosion rate in the dam catchments area was 1.184 mm/year, or equivalent to $0.232 \times 10^6 \text{ m}^3/\text{year}$. The Sediment Delivery Ratio was 35.21 %.

Key words : reservoir sedimentation