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## **Study of Shallowing with Inflow-Outflow Method for the Restoration Model of the Bakarü Dam**

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### **Abstract**

Mamasa watershed as a water reservoir of Bakarü Dam has experienced a highly critical damage due to the dramatical increase in sediment rate annually. Based on original analysis (New-Jec), the sediment rate in average was 133,000 m<sup>3</sup>/years and the capacity of dam sediment was 6,919.900 m<sup>3</sup> (planning for 50 years). Based on analysis result from PT. PLN Persero Team and Hasanuddin Univeristy, however the sediment rate in average was 423.800 m<sup>3</sup>/years while the capacity of dam sediment was 6,331.400 m<sup>3</sup>. It remained 588.500 m<sup>3</sup> ( $\pm 15$  years) of dam capacity. The rapid declining brought the energy crisis of PLTA which produces +126 MW of electrical power in South Sulawesi Province. This research used descriptive explorative method which consists of three steps: preparation, field survey and testing sample, analysis of sediment rate using inflow-outflow method and silting of reservoir model restoration. As a result, it showed a incline in signifinal every years, note data  $\pm 589,197.00$  m<sup>3</sup>/years. Over the recent 11 yearss, the dam capacity was about 6,481.167.00 m<sup>3</sup> and remained approximately 438,732.00 m<sup>3</sup> reserved capacity (26 years). Because of this issue, taking real actions is extremely required to prevent or minimze the sediment rate that causes dam silting. There were two proposed methods non-structural method by restoring forests and agricultural lands and stuctural method by restoring sediment in the reservoir with the flushing channel model testing.