

ANALISIS KINERJA BENDUNG PULOREJO DALAM PEMENUHAN KETERSEDIAAN AIR PADA DAERAH IRIGASI SIMAN KABUPATEN JOMBANG

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ABSTRAK

This study aims to analyze the discharge and physical condition of the Pulorejo Weir using a quantitative approach through flow velocity measurement, channel geometry assessment, as well as the calculation of actual discharge and irrigation demand. Measurements were conducted at two locations, namely the Menganto Main Canal and the Mojojejer Canal, using a current meter and calculation methods based on the Indonesian National Standard (SNI). The results show that the actual discharge at the Menganto Canal was 2.275 m³/s and at the Mojojejer Canal was 0.306 m³/s, while the irrigation demand for each was 2.102 m³/s and 0.248 m³/s, respectively. Furthermore, to evaluate the overall performance of the weir, the Analytic Hierarchy Process (AHP) method was applied, identifying seven key components: discharge, sediment, spillway, intake structure, flushing structure, sediment trap, and drainage structure. The AHP results indicate that discharge had the highest weight at 39.64%, followed by the spillway at 25.12% and sediment at 9.79%. The evaluation of the physical condition of the structures was conducted based on visual parameters, field measurements, and the Irrigation System Performance Index (IKSI). The Consistency Ratio (CR) value of 6.15% indicates that the applied AHP model is consistent and acceptable. This study concludes that the weir discharge has met irrigation requirements, and the structures are still considered feasible based on visual and structural evaluations. Recommendations are directed toward prioritizing the maintenance of components with the highest AHP weights to sustain the long-term performance of the irrigation system.

KEYWORDS : *Bendung, Daerah Irigasi, Debit Irigasi*