

## Sediment dredging assessment of the Mrica Banjarnegara hydroelectric reservoir based on technical and economic aspects

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<b>Abstract</b>	<p>Waluyo G, Laksono FXAT, Zaenurrohman JA, Mishra M, Piranti AS, Kovacs J. 2024. Sediment dredging assessment of the Mrica Banjarnegara hydroelectric reservoir based on technical and economic aspects. Lake Reserv Manage. XX:XXX-XXX. The Mrica Dam, built in Banjarnegara Regency, Indonesia, in 1988, was designed to have a usable life of 50 yr. However, the current life span is estimated to be less than 50 yr due to a decrease in the dam's capacity. This dam is facing a significant challenge in the form of intensive sedimentation, resulting in siltation issues. Active measures such as dredging efforts and catchment area management have been initiated to address this problem and prolong the dam's durability. Consequently, a comprehensive technical and economic analysis is imperative to gauge the efficacy of the dredging program. The engineering aspect of the study focused on sedimentation dispersal patterns and the identification of suitable dredging methods to combat the sedimentation problem effectively. Meanwhile, the economic review factored in both the cost of dredging operations and the profits derived from the sale of sedimentation materials. The findings from our assessment reveal the existence of 17 lucrative spoil banks, yielding an average annual gain of USD 118,575. However, it is crucial to note that dredging the foreset slope costs USD 1.65 million per year. Optimally, the most effective and efficient dredging initiatives should commence at the foreset slope and extend upstream of the dam. A strategically positioned disposal area has been designated south of the dredging location to facilitate the mobilization of dredged products. In conclusion, our analysis indicates that the cost incurred by the company for dredging the dam exceeds the profit generated from the sale of sedimentation materials.</p>
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