Study of Maintenance and Siltation of Bhojapur Dam Canal

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Abstract: *Artificial Intelligence (AI) is increasingly This study focuses on the maintenance and siltation issues of the Bhojapur Dam canal, which plays a vital role in irrigation for the surrounding agricultural regions. Siltation reduces the canal's water carrying capacity, affecting irrigation efficiency and agricultural productivity. The research involves comprehensive data collection, including historical records and on-site sediment sampling, flow monitoring, and physical inspections. Surveys with local farmers and maintenance personnel provide insights into operational challenges and socio-economic impacts. Advanced fieldwork, including GIS mapping and topographical surveys, alongside laboratory analysis of sediment and water quality, allow for a detailed understanding of sediment characteristics and erosion rates. The study employs statistical and hydrological modeling to quantify siltation impacts and predict future scenarios. Based on these findings, effective desilting strategies and maintenance schedules are proposed to optimize canal performance. Additionally, a software system for real-time monitoring and maintenance alerts is designed to facilitate ongoing management. This integrated approach aims to enhance the canal's operational efficiency, ensuring reliable water supply for irrigation and supporting sustainable agricultural development..*

Keywords: Bhojapur Dam, canal maintenance, siltation analysis, sediment sampling, water flow monitoring