

SEDIMENT MANAGEMENT IN THE CENTRAL VALLEY OF TARIJA

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ABSTRACT

The reservoirs of the Central Valley of Tarija and their constant sedimentation pose a risk to the water supply and, consequently, the development of the regional economy. The goal of the analysis is to propose a new conceptual paradigm for the long-term use of stored water, as well as the need to analyze and implement sediment management in the Central Valley of Tarija. A methodology is proposed that allows for the characterization of the sedimentary dynamics of reservoirs with limited information and located in mountainous areas, considering the lack of hydrometric and sedimentological data. This methodology involves the application of empirical equations to determine the retention capacity of the reservoir, the apparent density of the sediments, the degradation of the watershed, verify the design life, and estimate the useful life of the reservoir, ultimately categorizing the sediment-related problem using a siltation indicator. Additionally, drones were employed to generate the topography of the banks and perform bathymetric surveys with the goal of updating the topo bathymetric surface. This methodology reduces fieldwork time and simplifies the required logistics, generating products with good precision and greater detail, at a low operational cost for sedimentation monitoring. Through the evaluation of these measurements, combined with other correlated data, a regional sediment production equation has been formulated, highlighting the need to replicate this experience in other watersheds in Bolivia.

Keywords: Sediment Management, Reservoir, Life cycle, Sustainability.

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