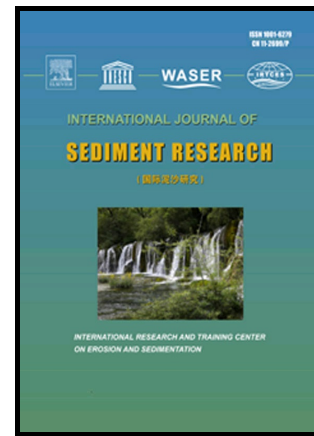


Author's Accepted Manuscript

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PII: S1001-6279(16)30073-7
DOI: <http://dx.doi.org/10.1016/j.ijsrc.2017.04.001>
Reference: IJSRC111

To appear in: *International Journal of Sediment Research*

Received date: 4 November 2016

Accepted date: 14 April 2017

Cite this article as: Dipankar Chaudhuri, Empirical approaches in prediction of reservoir sediment distribution-An experience of 57 reservoirs in the USA and India, *International Journal of Sediment Research*, <http://dx.doi.org/10.1016/j.ijsrc.2017.04.001>

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Empirical approaches in prediction of reservoir sediment distribution-An experience of 57 reservoirs in the USA and India

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Abstract

An accurate prediction of sediment distribution may minimize economic losses through proper and timely planning of the functional activities of a reservoir. This study assesses different temporal and spatial factors that affect for sediment deposition in a reservoir and its distribution. This study also focuses on evaluation of two popular distribution prediction methodologies, Area Increment and Empirical Area Reduction, based on experience with sediment distribution in 57 reservoirs in the USA and India. A non-iterative processed empirical distribution model (NPEDM) and a linear regression trend model (LRTM) are proposed to predict sediment distribution. Silt contributing area and inflow entering a reservoir are found to be the most significant factors affecting in reservoir sediment deposition. Compared to the Empirical Area Reduction method, the Area Increment method provided better prediction. The reservoir classification approach and empirical design distribution type curves given by Borland and Miller (1960) are found to be rational. Shape

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