

**STUDY ON THE IMPACT OF SEDIMENT DISCHARGE FROM TARBELA
RESERVOIR ON DOWNSTREAM GHAZI BARRAGE POND**

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2016

ABSTRACT

Sedimentation always remains a significant problem in reservoirs which reduces the useful life of the reservoir. The sedimentation problem in reservoirs has become more explicit, particularly in the areas where river carries high sediment load. Sediment transport in the hydraulic structures is a very complex phenomenon which can be solved by using different Mathematical / Numerical Models; due to their obvious advantages such as time-saving, money-saving, and scenario optimizing ability and these are being widely used for hydraulic structures to predict sediment flow movement, sediment transport and channel bed variations.

Research has been conducted to find out the sediment deposition in Ghazi Barrage Head Pond, Tarbela outflow sediment impact assessment on Ghazi Head Pond, sediment concentrations passing into Ghazi Barotha power channel. For this purpose, Hydrologic Engineering Centre-River Analysis System (HEC-RAS) simulation model was used. Four existing Hydrographic surveys were used i.e. 2005, 2007, 2009 and 2011. Simulation was done for 2005 hydrographic survey, calibration for 2007 and validation for 2009 & 2011. Percentage reduction in live storage capacity of Ghazi Pond was determined using Pre-Ghazi construction Bed Levels i.e. 2002 and Post-Ghazi Latest Bed levels i.e. 2011. The analysis reveals that approximately 5.30% gross storage of Ghazi pond has been depleted.