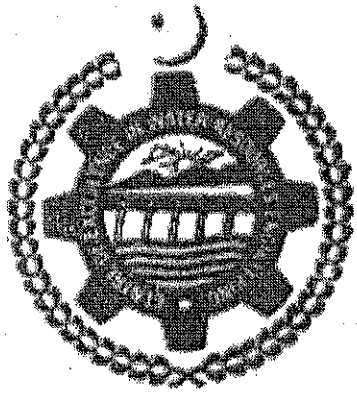
THESIS

SEDIMENT SIMULATION OF TARBELA RESERVOIR BY USING CCHE2D MODEL.



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ABSTRACT

Tarbela dam was built across the river Indus, about 65 kilometer North-West of Islamabad. The primary function of this dam is to provide water for irrigation purposes with a secondary function of power generation. Tarbela dam faces a major problem from the consequences of high sediment inflow in the reservoir. An annual inflow sediment load of 0.197 MAF (360 Million Short Tons) was estimated at the project planning and design stage by the project consultants. At the design stage of the dam, it was considered that the bulk of its active storage would be silted up in 50 to 60 years. Purpose of this study was to determine affects of sedimentation on the bed level at the center line of the reservoir by using CCHE2D model.

Results of the model show that the sediments are settling in the reservoir. It was clearly seen from the results that the maximum silt was deposited in the range of 24 to 36 miles; the range line numbering 37 to 50 comes in this particular region. The results of the model further revealed that there are extreme variations in the silt deposition. The results of the model didn't show any noticeable change in bed elevation near the dam body. Just after 36 mile mark the model results show an extreme deviation from the observed value. Here the simulation process might have been affected by simulating during low flow periods. Furthermore the results showed that the sediments were transported from higher velocity zones to the lower ones. In other words, one can say that sediment will accumulate in low velocity zones. Overall results of the model compared well with the observed data.

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