

Assessment of Reservoir Sedimentation Problem for Six Large Dams in Turkey

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All reservoirs are subject to sedimentation problems mainly because of erosion, which occurs over the watersheds of the dams. Due to the accumulation of the sediment within the dam reservoir the useful volume of the reservoir decreases by the time. If the sedimentation rate of the reservoir were high, the reservoir would be filled with sediment in a shorter time than the expected economic life of the reservoir. In the case of a dam constructed for energy production, this situation leads to the increased cost of energy and losses in generating dependable and renewable electricity.

In Turkey, many reservoirs have lost their capacity rapidly because of rapid sedimentation, occurring mainly due to the change of land use and failure to take adequate measures to control soil erosion. In the present study, analysis of the sedimentation problem in the Seyhan, Demirköprü, Keban, Tercan, Kesikköprü and Hirfanlı Dams were investigated by evaluating hydrographic surveys. Amounts of reservoir sedimentation in these six dams are calculated from comparison of successive hydrographic surveys. The Sediment Yield Rate (SYR) values calculated from hydrographic surveys and suspended sediment measurements from sediment gage stations are also compared and discussed in this context.