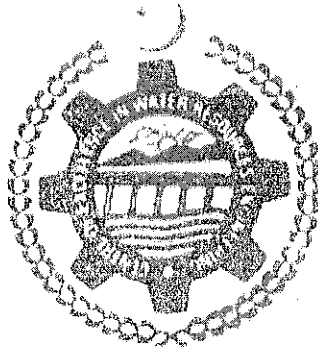


THESIS

**IMPROVEMENT OF CANAL WATER SUPPLIES IN LOWER
BAHAWAL CANAL SYSTEM (CHOLISTAN AREAS)**



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ABSTRACT

Irrigation system of Pakistan is the largest in the world, irrigating more than 21 million acres of land. Further extension of the irrigation system is essential as the population is growing day by day. At the moment the water storage facilities are very limited and as an alternative the provisional government of Punjab is working to utilize flood waters directly for irrigation purposes by diverting in the irrigation channels. These waters are mostly available during monsoon season. With the assistance of donor agencies the remodeling of irrigation system is in progress. However, careful studies are essential to ensure the flood water availability, the duration and sediment impact in the system.

This research work concentrates on the availability of flood water at Sidhnai barrage and Islam headworks. After Indus Water Treaty in 1960, the supply of water in eastern rivers (Ravi, Beas, Sutlej) was cutoff by India. To overcome this problem, a system of link canals to shift water from western rivers to eastern rivers had been constructed.

Flood water availability at Sidhnai barrage and Islam headworks is studied in consideration of Indus water treaty. Maximum Annual Flood record and Sediment record at aforesaid Barrages have been collected from Irrigation department and ISRIP. Flood Frequency Analysis has been performed at Islam and Sidhnai Headworks to check the flood occurrences at aforesaid Barrages. As per result of the

Flood Frequency Analysis at Islam and Sidhnai Barrage, the availability of additional water is not a problem during monsoon season.

The flood water normally contains more sediment concentration as compared to normal river water flows. Sedimentation analysis has also been performed with HEC-6 to check the sediment impact on the system. The analysis shows that for higher discharges, the sedimentation in the canals will not be significant. However, further analysis and model studies are required to ensure smooth functioning of the irrigation system.