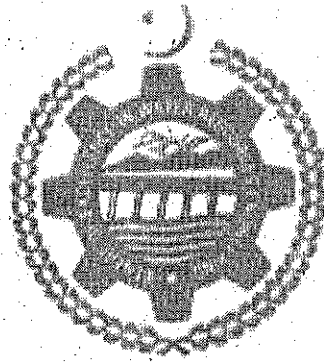


THESIS

**HYDRAULIC SIMULATION OF IRRIGATION CANAL FOR ITS  
OPTIMAL OPERATION AND MANAGEMENT: A CASE STUDY OF  
LOWER CHENAB CANAL SYSTEM**



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## ABSTRACT

The study deals with the checking, calibration and validation of hydraulic behavior of canal system. It also aims to provide management and monitoring tools to the persons who are responsible for equitable distribution of canal water. Area selected for study comprises of a large canal network known as Lower Chenab Canal System. The Lower Chenab Canal System comprises of the part of Rechna Doab commanded by Khanki Headworks.

Khanki Head works located 48 km s downstream of Marala and 32 km upstream of Qadirabad barrage. The canal system supplies water to the areas of District Hafizabad, Faisalabad, Jhang, Sheikhpura and Toba Tek Singh. For equitable distribution of canal water monitoring system is necessary. The software used for calibration of system was Simulation of Irrigation Canal (SIC). The SIC software is a mathematical hydraulic simulation model. The model could provide answers to major problems confronted by canal manager, by simulating the steady and unsteady state hydraulic and operational conditions in an irrigation canal and evaluating new management rules, once they are defined and formulated. Software was operated for different scenarios i.e. checking of anticipated targets with proposed parameters at 100% designed discharges. The calibration / validation of model was carried out with existing geometry of Lower Chenab Canal system with different discharges at head. Thus baseline has been framed to apply the study results on the whole irrigation network in Pakistan.