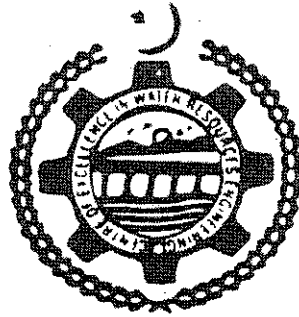


THESIS

**SUSTAINABILITY OF INSTITUTIONAL REFORMS ON IRRIGATION
SERVICE DELIVERY AND WATER PRODUCTIVITY**



SUBMITTED BY

ZIA-UL-HAQ
2009-PG-WRM-18

FOR THE DEGREE OF

MASTER OF SCIENCE

IN

WATER RESOURCES MANAGEMENT

CENTRE OF EXCELLENCE IN WATER RESOURCES ENGINEERING
University of Engineering and Technology, Lahore

2012

ABSTRACT

The irrigation system management in Pakistan is undergoing institutional reforms to introduce participatory irrigation management with involvement of farmer's organizations (FOs). Hakra 4-R is one of the distributaries whose operation and management was given to FO in 1999. This study was designed to examine the impacts of institutional reforms and compare the irrigation service delivery of Hakra 3-R operated by provincial irrigation department and Hakra 4-R operated by FO. This study is based on detailed analysis of 18 water courses command areas, having nine water courses each on Hakra 3-R and 4-R distributaries. Each distributary was divided into three reaches as head, middle and tail along the length of the distributaries and three outlets were selected from each reach of both the distributaries. The investigations were focused on parameters like delivery performance ratios (DPRs), standard deviation (σ), temporal coefficients of variation (CV_T) and irrigation water productivity. The input data was collected by field measurements and observations, questionnaires and secondary data sources.

Results revealed that Hakra 4-R distributary has superior irrigation service delivery while comparatively worse condition of water availability exists at Hakra 3-R distributary. Average land and water productivities at Hakra 3-R distributary were 2.69 (ton/ha) and 1.89 (kg/m³) while for Hakra 4-R distributary these were 2.94 (ton/ha) and 2.06 (kg/m³) respectively. On overall basis, the results indicate that the institutional reforms have improved irrigation functioning and better irrigation service delivery.