

5011

"WATER QUALITY MANAGEMENT STUDY  
OF  
RIVER RAVI

THESIS

FOR THE DEGREE OF MASTER  
OF

PHILOSOPHY

IN

WATER RESOURCES MANAGEMENT

Submitted by

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## ABSTRACT

Increasing water quality problems and increasing demand of the beneficial use of water have combined to make it possible for water quality to be truly managed on a scale never considered before. In case of developing countries like Pakistan where there are severe financial constraints on its economy it is necessary to analyze and formulate such strategies for water quality management which would maintain acceptable water quality standards for irrigation and drinking purposes at a minimum. Pollution problems of River Ravi due to Lahore sewage discharges have been taken up for a detailed research investigation.

Ravi River in its reach between Ravi Syphon and Balloki is being polluted with sewage from the city of Lahore and its suburbs. Untreated industrial effluents from Hudira and Deg Nallah are also falling into it. In this reach as well as downstream of Balloki the river water is being used for irrigation and livestock purposes. Considering future increase in population and the consequential enhancement of pollution in the river more and more expansive treatments of sewage will be required to maintain environmental standards of this water resource.

In the present study a realistic flow pattern is established for accurate determination of treatment levels, through statistical analysis. Streeter and Phelps Model has been developed into a computer model in view of the variations in flow, temperature and other variables on the assimilative capacity of the stream. The study indicates the effectiveness of various methods of water quality management to be adopted singly or in combination.

The study explores that the criteria of Minimum Average Seven Consecutive Days Flow (MA7CD/10 years) once in 10 years needs to be relaxed by adopting Minimum Annual Average Monthly Discharges to save high treatment considerations and expenditures.