

THESIS

ENVIRONMENTAL CONSEQUENCES OF WASTE
WATER IRRIGATION AND THEIR IMPACTS ON LOCAL
COMMUNITY



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By

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ABSTRACT

Wastewater irrigation is emerging as an alternative in water scarcity areas where drains carrying municipal and industrial effluents. The present study aimed to assess the environmental impacts of wastewater irrigation on soil and groundwater, and to examine the health hazards associated with it. Results of the study were compared with the fresh water (canal water) uses area. In Bhattiwala and Chakera villages, two experimental field plots were selected one in each village. Canal water was the source of irrigation in Bhattiwala but wastewater irrigation was in practice in Chakera village. Samples of soil and water were collected randomly from the selected sites and laboratory analysis was performed for soil and groundwater quality parameters. The results of the field study indicated that the quality parameters like EC, pH, RSC, SAR and TDS in the groundwater were higher than the NEQS at wastewater irrigated fields in comparison with canal irrigated fields. Soil salinity was observed and found significantly increased from 2001 to the year 2006 reflecting the effect of poor quality water on soil in both villages selected fields. Epidemic survey further proved this fact; that is the local community in the wastewater irrigated village (Chakera) suffering from waterborne diseases more frequently than the Bhattiwala village. Heavy metal concentrations were found within their permissible limits but biological parameters expected to cause these diseases in wastewater irrigated site. Some suitable measures were suggested to handle this situation and to minimize the hazardous effects of wastewater irrigation on local community.