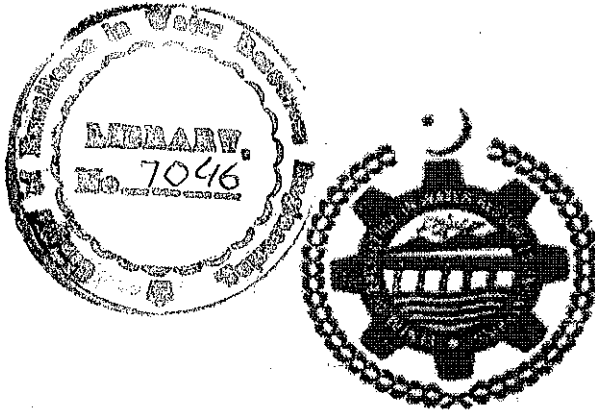


THESIS

**IMPACT OF SEPTIC TANKS ON GROUNDWATER QUALITY AND
HEALTH OF LOCAL COMMUNITY IN MANDI BAHA-UD-DIN**



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ABSTRACT

Water is an essential element for life survival. Pakistan is blessed with enough surface and groundwater wealth. But due to rapid population growth, haphazard urbanization and indiscriminate water consumption practices have put in massive stresses on the quality as well as the quantity of water resources in the county. Decline in water quality and contamination of lakes, rivers and groundwater aquifers has causes the reasonable enhance in the water-borne diseases and other impacts on the community health. There are number of factors which need to be visualized and focus on, to improve, protect and maintain the quality of water resources of the country. In context with the severe conditions of water quality as highlighted by the prominent news agencies the present study was initiated to address the water quality deterioration problems in Mandi Baha-ud-Din.

In Mandi Baha-ud-Din the water supply source is the Ground Water. Mostly dwellings have their own pumps. Regrettably in this city, some residential schemes have established their sewerage system, but there is no sewerage system functioning in the city so far, and yet no any sewage treatment facility is provided for the city. Public sector is practicing the separate Septic Tanks for home sanitary drainage.

This research study emphasizes on exploring the Impacts on ground water quality of the city due to leaching of septic tanks and the effluent flowing in the open channels. At some points, observed that sanitary water accumulating in ponds. For purpose of research study, the fields Investigations were conducted. Also several

people interviewed through a questionnaire. The true picture of the facts about water quality conditions and epidemics is explored. Details of the septic tank system, which adopted by the community in the locality, are studied. In the selected sites of the city, ground water sample are collected for various chemical examination and microbial analysis. Assessed Ground water quality is compared with the international standards. Moreover the risks associated with drinking water and occurrence of water-borne diseases was also discussed in this research study.

A pilot area was selected for detailed investigation. Regular monitoring of groundwater quality in the selected areas was done for three consecutive years 2005 to 2007 and then in year 2008 some samples from crucial sites are collected and tested. The results revealed that existing groundwater quality are poor. Some selected water quality parameters are exceeding in their concentrations. The comparison of water quality parameters with the existing water quality standards shows that salt concentration of the groundwater (e.g.; concentration of Na, Mg and TDS) is higher than the recommended values. Total Coliform and fecal Coliform tests performed for same selected points and it is found that all samples contaminated with Microbes. Tests reports and field survey reveal the incidence of water-borne diseases, to be higher in some areas.

Analysis of data illustrates that design of septic tank to be optimized and advanced techniques should be utilized. Otherwise a proper sewerage and sewage treatment scheme may be planed for the city. Similarly drinking water to be treated, and techniques to be employed to standardize the drinking water.