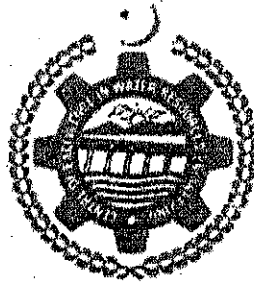


**THESIS**

**INVESTIGATION OF CAUSES OF ARSENIC CONTAMINATION  
IN GROUNDWATER IN SELECTED AREAS IN PUNJAB**



By

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## ABSTRACT

Water due to its very good solvent characteristic is prone to dissolve toxic/hazardous substances responsible for water pollution. In this study, water samples of 15 locations from Multan study area were analysed with respect to various water quality parameters/elements. Results of the analysis revealed that the concentration of various water quality elements varied from location to location depending on the site-specific geological and geo-hydrological conditions of the area. The concentration of different elements ranged from normal permissible limits to exceptionally high values depending upon the local conditions of the site. The high values of various groundwater quality elements were mainly due to diversified natural/human activities observed in those areas such as seepage from municipal wastes, use of different agricultural products, disposal of liquid wastes, poultry/livestock wastes, as well as activities of different manufacturing industries e.g. wire, Qingqi motorcycle rickshaws, fertilizers, pesticides, and other chemical manufacturing industries working in or around the study area.

The results of the study revealed that  $A_s$  concentration varied from location to location depending upon the above mentioned site-specific conditions that is why a great variation was noted in the resulting values of  $A_s$  concentration. At certain places,  $A_s$  concentration was found to be exceptionally higher than the recommended values, mainly due to the involvement of aforesaid intensive natural and human activities in the area. The analyses indicated that out of total 15 locations, 80% locations were found safe and 20% were unsafe with respect to Arsenic ( $A_s$ ) concentration.