# Groundwater Quality Assessment with WQI Technique: Comparative Report on Kathore Area, Malir District, Karachi, Pakistan

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The aim of this study is to evaluate the groundwater quality of the Kathore area using the Water Quality Index (WQI) measured through physicochemical parameters. For this purpose, a total of 11 groundwater samples were randomly collected from bore wells at depths ranging from 150 to 500 feet in the study area. The data revealed that the total dissolved solids (TDS) content of groundwater (mean: 891 ppm) is higher than the permissible WHO limit but within the limits proposed by Pakistan's National Standards for Drinking Water Quality, i.e., TDS <1000 is suitable for drinking purposes. Concentrations of Na (mean: 179 mg/l), K (mean: 15.7 mg/l), Ca (mean: 62 mg/l), Mg (mean: 115 mg/l), Cl (mean: 260 mg/l), HCO3 (mean: 296 mg/l), NO3 (mean: 6.41 mg/l), and SO4 (mean: 193 mg/l) were calculated, and 90% of the parameters are within the WHO guidelines for drinking water. TDS >500 but <1000 indicates that groundwater is slightly saline, indicating that agricultural activities in the area are influencing groundwater quality. The calculated value of the Water Quality Index (WQI = 64) indicates that groundwater in the Kathore area is not suitable for drinking but can be used for irrigation or industrial purposes. However, proper treatment of the available groundwater is required.