

Groundwater Quality Assessment for Drinking Purpose in Aurangabad Urban City, Maharashtra, India

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Abstract

Present study was undertaken on 85 groundwater samples collected from the Aurangabad urban city area. The groundwater chemistry is primarily controlled by rock-water interaction. The hydrochemical analysis reveals that the groundwater is predominantly of CaNaHCO₃ type, fresh and hard to very hard in nature. The NO₃ concentrations in the groundwater of the study area exceed the permissible limits in 34.11% of the samples. Water quality index (WQI) indicates that 68% and 16% of groundwater samples fall in good and poor categories for drinking purpose. The calculated values of R₁ and R₂ reveal that 96.47% of the groundwater samples belong to (Na⁺-SO₄⁻) and deep meteoric percolation types. The effective leaching, dissolution process and rock-water interaction process are the main source for degrading the groundwater quality at some locations.

Keywords: Groundwater quality, drinking purpose, WQI, Statistical analysis, Aurangabad, Maharashtra.