

WATER QUALITY INDEX (WQI) FOR ASSESSING DRINKING WATER AROUND CHEVELLA AREA, VIKARABAD DISTRICT OF TELANGANA STATE, INDIA

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Abstract

Assessment of water quality for drinking purpose in Chevella area, Vikarabad District of Telangana State had been carried out using BIS (1991) Standards as well Water Quality Index (WQI) for both dry and rainy seasons. Twenty-three groundwater samples from various villages were collected according to the APHA (1985) methodology. Fourteen parameters such as pH, Total Dissolved Solids (TDS), Total Hardness (TH), Sodium (Na^+), Potassium (K^+), Calcium (Ca^{2+}), Magnesium (Mg^{2+}), Chloride (Cl^-), Carbonate (CO_3^{2-}), Bicarbonate (HCO_3^-), Sulphate (SO_4^{2-}), Nitrates (NO_3^-), Iron (Fe^+) and Fluoride (F^-) had been analysed. The results show that about 62.5%, 91.7% and 87.5% of the samples respectively, are within the BIS (1991) acceptable limits with respect to TH, Mg^{2+} and Fe^+ , but the remaining constituents are within permissible limits in the dry season except Na^+ and HCO_3^- . In the rainy season, about 95.8% of the samples are characterised by BIS (1991) acceptable limits with respect to Fe^+ concentration; the remaining constituents in the water samples are within maximum acceptable limits. Based on the WQI values, it has been found that the percentage of good quality drinking water is increased from 4% in the dry period to 13% during the wet season whereas poor quality waters are reduced to 87% from 96% in the study area. The quality of groundwater for drinking purpose has changed due to percolation of rainwater through the rainwater harvesting structures.

Keywords: Water Quality Index (WQI), Drinking water, BIS, Chevella area, Vikarabad District, Telangana.