



www.ggsnagpur.org

Groundwater Quality Assessment Studies in Yeola Block of Nashik District, Maharashtra

K.R. Aher^{1*}, S.M. Deshpande² and A.M. Varade³

¹Groundwater Survey and Development Agency, Jalna-431202, India

²Joint Director, Department of Higher Education, Aurangabad-431001, India

³Department of Geology, RTM Nagpur University-440001, India

*E-mail: kailashgis@gmail.com

Abstract

The hydrochemistry of 55 groundwater samples in Yeola block of Nashik District, Maharashtra were determined and assessed for their usefulness in drinking and agricultural purposes. Groundwater quality was examined by different physico-chemical parameters like pH, electrical conductivity (EC), total dissolved solids (TDS), total hardness (TH), calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulphate, chloride and fluoride. The abundance of major cations and anions is shown as $Na > Mg > Ca > HCO_3 > Cl > SO_4$. The physico-chemical parameters of groundwater were compared with WHO and Indian standards, to ascertain its suitability for drinking purpose. The sodium adsorption ratio (SAR), percent Na (%Na), residual sodium carbonate (RSC), Kelly ratio (KR), residual sodium bi-carbonate (RSBC), permeability index (PI) and magnesium absorption ratio (MAR) were calculated for irrigation suitability assessment studies. The overall analysis revealed unsuitability of few groundwater samples for drinking due to higher values of physico-chemical parameters crossing the permissible limits. Whereas majority of the groundwater samples are suitable for irrigation in accordance with SAR, RSC, RSBC, KI, Na% and CR values.

Keywords: Groundwater quality, Irrigational use, Hydrochemical facies, Yeola block, Nashik district, Maharashtra.