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HEAVY METAL CONCENTRATIONS IN GROUND WATERS OF CHIKALTHANA AREA OF AURANGABAD, INDIA

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Abstract

The Aurangabad urban agglomeration during the last three decades has emerged as a major industrial hub, and one of the fastest developed industrial sectors in India. The heavy industrialization and the increasing urbanization are responsible for the rapidly increasing stress on the groundwater of the area. The enormous quantity of wastewater generated from domestic, commercial, industrial, and other sources, has led to the problems of groundwater in and around Chikalthana Area of Aurangabad. Therefore considering this serious aspect the present study assesses the groundwater contamination due to heavy metals. Groundwater samples were collected in month of May 2009 and analyzed for various water quality parameters.

The analytical data shows very high concentration of total dissolved solids (22.22%), total hardness (57.77%), chloride (22.22%) etc. Heavy metal namely Iron (Fe), Copper (Cu), Zinc (Zn),Chromium (Cr), Nickel (Ni),Manganese (Mn), Lead (Pb) were determined by using Atomic Absorption Spectrophotometer (Model Chemito, AA 201) as per the standard methods for examination of water and wastewater (APHA, 1995). The analytical data revealed that, Groundwater samples are heavily contaminated by Iron, Chromium, Lead and Nickel throughout the area. Urban runoff as well as municipal sewage and industrial effluents could be the main cause of the groundwater contamination spreading by rainwater. A comparison of the results of groundwater with WHO (1993) and BIS (1991) guidelines show that most of the groundwater sampling station are heavily contaminated with heavy metals. Overall Chikalthana area of Aurangabad is environmental threshold and there is urgent need to reduce groundwater pollution levels before it deteriorates and became unmanageable.

Keywords: Groundwater quality, Heavy metals, Contamination, Aurangabad, India