

## Risk Prediction Based on Heavy Metal Distribution in Groundwater

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**Abstract :** Anthropogenic control on groundwater chemistry has emerged as a critical concern now-a-days, especially in the industrial areas. In view of this, a comprehensive study on the distribution of the heavy metal in the groundwater was conducted to investigate the impact of urbanization in the aquatic media. Water samples either from well or borehole from Fourty different sites in and around, Durgapur, West Bengal were collected for this purpose. The samples were analyzed using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) for Calcium (Ca), Cobalt (Co), Chromium (Cr), Copper (Cu), Iron (Fe), Potassium (K), Magnesium (Mg), Manganese (Mn), Sodium (Na), Nickel (Ni), Lead (Pb), Zinc (Zn) content and the levels were compared with WHO specified maximum contaminant level as well as permissible limits given by the Bureau of Indian Standards (BIS). The result obtained from the present study indicates a significant risk to the population of this important emerging 'smart city' of eastern India. Because of the toxicity of these metals and the fact that for many tube-wells, dug-wells and bore-wells are the only sources of the water supply for a major fraction of the population in this environment. In this study, an attempt has been made to develop metal contamination risk map.

**Keywords :** heavy metals, ground water, maximum contamination level, ICP-MS

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