

GIS AIDED GROUNDWATER QUALITY ASSESSMENT IN GURGAON DISTRICT, HARYANA, INDIA

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Abstract

Groundwater is a major source of requirement for all purposes. A good quality and quantity of groundwater plays vital role in the development of an area. Geographic Information System (GIS) is of tremendous utility in understanding, representing and interpreting the data in spatial and non-spatial forms. In the present study, Arc GIS 9.3 GIS software has been used to assess the groundwater quality in Gurgaon District, Haryana. A total 31 groundwater samples have been collected during field visits in the month of September, 2013 (post-monsoon) and January, 2014 (pre-monsoon) and important eight drinking water parameters pH, alkalinity (Ak), total hardness, total dissolved solids (TDS), (TH), iron (Fe), chloride (Cl), nitrate (NO₃) and fluoride (F) have been analyzed using a field water testing kit prepared by Tamil Nadu Water Supply and Drainage Board (TWAD), Chennai. Inverse Distance Weighted (IDW) interpolation technique has been used to know the spatial distribution of these parameters in the district. The parameter values have been classified into three classes i.e. desirable, permissible and non-potable as per BIS 1991 standards and spatial extent (area) of each parameter calculated. This study shows that spatial extent of various groundwater quality parameters improves during pre-monsoon season which may be due to recharge of groundwater. The findings of this study can be used for planning, development and management of drinking water in the district.

Keywords: GIS, Groundwater quality, Inverse Distance Weighted Interpolation, Gurgaon, Haryana