

SEASONAL VARIATION ON THE GEOCHEMICAL PARAMETERS AND QUALITY ASSESSMENT OF THE GROUNDWATER IN TIRUPUR REGION, TAMIL NADU, INDIA

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Abstract

Groundwater is the major source of domestic, agricultural and other water related activities. The untreated industrial effluents discharged on the surface causes severe groundwater pollution in the industrial belts of the country. The extensive agricultural, industrial activities and urbanization result in the contamination of the aquifer. The study area in Tirupur district, Tamil Nadu, India is selected to discuss the impact of seasonal variation of groundwater quality on drinking and irrigation purposes. Sixty two groundwater samples have been collected from the study area. Hydro geochemical studies were carried out in this area with the objective of identifying the geochemical process and their relation to groundwater samples. Chemical data are used for mathematical calculation and graphical plots to understand the chemical process and its relation to the groundwater quality. The nature of the water samples was determined using the piper diagram. The EC and TDS values measured were above the guide level, while nitrate in particular was found in almost all groundwater samples to be significantly above the maximum desirable concentration for the quality of water intended for domestic purposes as per the national and international standards. Majority of the samples are not suitable for domestic purposes and far from drinking water standards. However, PI and SAR values reveal that most of the groundwater samples are suitable for irrigation.

Keywords : Groundwater chemistry – seasonal variation – quality assessment - Tirupur Region – Tamil Nadu – India.