

HYDROGEOCHEMICAL ANALYSIS OF GROUND WATER OF UPPER BENNIHALLA BASIN, KARNATAKA

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Abstract

Hydrochemical studies which are significant for assessment of water quality have been carried out to study the source of dissolved ions in the groundwater of the Upper Bennihalla basin, which is one of the sub basins of Malaprabha River, Karnataka. Eighty nine ground water samples have been collected from different bore wells and dug wells, which are being used for drinking and irrigation purposes. The physico chemical parameters such as hydrogen ion concentration (pH), Total dissolved solids (TDS) and Total hardness (TH) were measured in addition to major cation and anion concentrations. A comparison of the ground water quality is relation to drinking water Standards was made. The pH values of groundwater in this area range from 6.70 to a maximum of 8.80 and from 6.50 to 8.50 for dugwells and bore wells receptively. The average pH values for the groundwater of Upper Bennihalla basin is 7.30 and indicate slightly alkaline nature and are suitable for drinking purpose, The total hardness of groundwater in the study area varies between 116 and 2780 ppm and 60 and 1288 ppm for dug wells and bore wells respectively. 92% of groundwater samples fall in "Hard Water" category and there is a need for softening these waters if it is to be used for drinking and domestic purposes. The concentration of fluoride from 0.4 to 1.2 ppm in dug wells. All the samples are within the permissible limit as per standards proposed by WHO. In most of the samples alkaline earths ($\text{Ca}^{2+}+\text{Mg}^{2+}$) exceeds alkalies (84%) and strong acids exceeds weak acids (50%) as per pipers trilinear diagram.

Keywords: Hydrogeochemistry, Groundwater, Upper Bennihalla Basin, Karnataka