



EVALUATION OF THE GROUNDWATER QUALITY FOR ITS SUITABILITY FOR DRINKING AND IRRIGATION IN THE INDIAN STATE OF MAHARASHTRA'S KHANAPUR TALUKA, SANGLI.

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ABSTRACT

In order to evaluate the physicochemical properties of groundwater quality in Khanapur Taluka, Sangli District, representative groundwater samples from a total of 65 bore wells and 35 dug wells were collected in the pre-monsoon and post-monsoon seasons of 2014. The physico-chemical studies of water samples from dug wells and bore wells show that alkaline earths exceed alkalies ($\text{Ca} + \text{Mg} > \text{Na} + \text{K}$) hydrochemical facies are present in 100% of pre- and post-monsoon samples. Similarly, 100% dug well and bore well water samples belongs to weak acid exceed strong acid ($\text{HCO}_3 + \text{CO}_3 > \text{Cl} + \text{SO}_4$) hydrochemical facies in pre and post-monsoon seasons. Out of 35 samples of water taken from dug wells in the pre-monsoon season, 12 (34.29%) and 5 (14.29%) fell into the C2 - S2 and C2 - S1 categories, respectively, indicating good water quality for irrigation. 15 samples (42.86%) belong to C3 - S2, which indicates bad water quality for irrigation, while 3 samples (8.57%) belong to C3 - S1, which indicates medium water quality for irrigation. 18 samples (51.43%) from the post-monsoon season and 4 samples (11.43%) that belong to the C2 - S2 and C2 - S1 types, respectively, indicate good water quality for irrigation. Two samples (5.71%) fit the C3-S1 type, indicating that the water is of a medium quality for irrigation. 10 samples (28.57%) are of the C3 - S2 type, indicating bad irrigation water quality, and 1 sample (2.28%) is of the C3 - S3 type, indicating very bad irrigation water quality. Similar to this, out of 65 samples of pre-monsoon bore well water, 4 samples (6.15%) and 14 samples (21.54%) respectively belong to the C2 - S1 and C2 - S2 types, indicating good water quality for irrigation. 4 samples (6.15%) fall within the C2-S3 type, which indicates irrigation water of medium quality. 38 samples (58.46%) belong to the C3 - S2 type, indicating bad irrigation water quality, while 5 samples (7.69%) belong to the C3 - S3 type, indicating very bad irrigation water quality. 15 samples (23.08%) and 10 samples (15.38%) from the post-monsoon season are of the C2 - S1 and C2 - S2