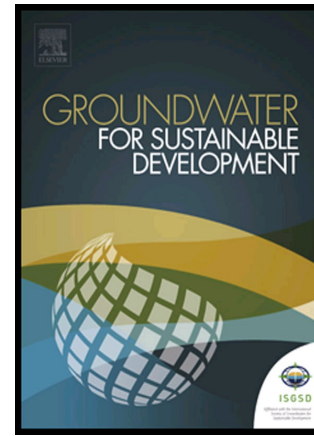


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Assessment of geothermal water quality for industrial and irrigation purposes in the Unai geothermal field, Gujarat, India

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ABSTRACT:

Nowadays, a spotlight on the direct manipulation of water from the geothermal fields is laid for manifold applications. This manuscript discusses the utilization of water produced from geothermal wells for irrigation and industrial purposes. In order to identify the suitability of the water for the above mentioned uses, various hydro-chemical parameters were evaluated. Samples were collected from three geothermal well sites from Unai village, a prominent geothermal field situated in Navsari district, Gujarat, India. The hydro-chemistry of the samples collected from hot spring (depth 30-45 m) was studied and samples were examined by calculating different parameters. The complete study was done individually for both industrial and irrigational uses of geothermal water. The mean surface temperature of the water is 55 °C and average pH of the sample studied is 8.12. The key Water Quality Indices (WQI) such as Langelier Saturation Index (LSI), Ryznar Satbility Index (RSI), Puckorious Scaling Index (PSI) and Larson-Skold Index (LS) were examined for industrial utilization and the key indices like Sodium Absorption Ratio (SAR), Sodium Percentage (SP), Kelly Ratio (KR) Residual Sodium Carbonate (RSC) and Permeability Index (PI) were examined for irrigational utilization of geothermal water. LSI and