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Seawater Intrusion in Coastal Areas from Poovar to Shangumugham, Thiruvananthapuram District, Kerala, India

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Abstract

The coastal aquifers in Kerala are experiencing seawater intrusion due to overexploitation in order to meet the demand of the growing population. Only a few studies have been done in the present study area. So, a study was conducted on coastal aquifers from Poovar to Shangumugham, Thiruvananthapuram district, Kerala state in order to find out the status of seawater intrusion in the area. Groundwater samples were collected and the quality and impact of saltwater intrusion were studied by determining the geochemical characters of 78 groundwater samples collected during pre-monsoon and post-monsoon each. Physical parameters and chemical parameter major cations and anions were determined. The data were analyzed and the multivariate analysis was carried out using SPSS 24. The correlation and R-mode factor analysis confirms the presence of seawater intrusion and using Q-mode factor analysis the areas affected by seawater intrusion were demarcated. Thus, the groundwater of the study area has to be managed sustainably considering the geochemical nature and their seasonal variations, as region proposed for study is a coastal fragile environment.

Keywords : Salt Water Intrusion, Coastal Aquifers, Poovar-Shangumugham, Groundwater, Kerala
