

**ASSESSMENT OF GROUND WATER QUALITY IN
KIRANKULAM AREA OF BATTICALOA, SRI LANKA WITH
SPECIAL REFERENCE TO CATION CONCENTRATIONS, pH,
EC, TDS, AND TURBIDITY**



BY

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ABSTRACT

This study intended to evaluate the suitability of groundwater for agriculture and drinking purposes in Kirankulam village of Batticaloa district. To achieve this, groundwater samples were collected from 60 sampling points from February to March 2023 and analyzed for physico-chemical parameters such as pH, EC, TDS, Ca, Mg, Na, K, Bicarbonate, Carbonate, turbidity, SAR, SSP and Ca^{2+}/Mg^{2+} .

The results revealed that, the pH of the irrigation and drinking water used on land sides varied from 6.4 to 8.6 and 7.3 to 8.4 respectively. Similarly, in sea side it was found as 6-8.3 and 7.6-8.4 respectively. As far as the EC is concerned land-side irrigation and drinking water and sea-based irrigation and drinking water ranged from 0.094 to 0.911 dS/m, 0.3 to 0.927 dS/m, 0.469 to 1.376 dS/m, and 0.344 to 1.349 dS/m. Comparatively higher EC and TDS values were observed in the water at sea side than the land side.

Turbidity levels for land-side irrigation and drinking water as well as sea-side irrigation and drinking water ranged from 0.04 to 328 NTU, 0.01 to 14.35 NTU, 0.38 to 23.64 NTU, and 0.01-2.23 NTU, respectively. Respectively. It shows higher values in land side areas.

According to the results, parameters such as Ca, Mg, K, Na, carbonate and bicarbonate were within acceptable range for irrigation and drinking purpose.

The WQI revealed 66.6% of tube well sample are good water quality, 10% belong to the poor water category, and 23.3% to the excellent water quality category from the study site.

Keywords: Groundwater, water quality, salinity, electrical conductivity, total dissolved solids

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