

**Title:** Quality of Ground Water in the Valukkai Aru Region

**Authors:** M. Sheetharon and T. Mikunthan

**Keywords:** Quality, Aquifers, Jaffna Peninsula, Physicochemical parameters, Geochemical characteristic, Piper's plot

**Issue date:** November 25-26, 2021

**Journal:** Proceedings of the International conference on Innovation and Emerging Technologies

**Publisher:** Faculty of Technology, University of Sri Jayewardenepura

**Citation:** Sheetharon, M. and T. Mikunthan. (2021). Quality of groundwater in Valukkai Aru region, Jaffna. Proceedings of the International conference on Innovation and Emerging Technologies 2021 held on November 25 – 26<sup>th</sup> 2021, Faculty of Technology, University of Sri Jayewardenepura. Pp.192

**Abstract:** Water is very important life supporting material and required for all biotic communities for domestic, irrigation, sanitation and industrial purposes. Water resources are becoming increasingly scarce in many areas of the world due to development, and increased demand. The surface stream, Valukkai Aru, is active only during the monsoon and there are no reservoirs of a perennial nature in Jaffna Peninsula. There are complaints by farmers regarding salinity problem in these area in recent past. Also, the recent year's pond water in the Valukkai Aru has been heavily polluted due to continuous and liberal use of organic manures and indiscriminate use of inorganic fertilizers. Freshwater availability is limited in the Valukkai Aru drainage basin area. Hence study was aimed for prediction of geochemical characteristics of the groundwater. Initially, 114 wells were selected, and groundwater samples were tested for pH and EC during February 2020. Based on EC, pH, land use, and well type 40 wells were selected, and groundwater samples were collected during driest period June 2020 for secondary analysis. Geochemical characteristics were examined by various physicochemical parameters such as sodium, calcium, magnesium, bicarbonate, carbonate, total hardness and chloride. Hydro geochemical faces of groundwater quality in study area reveals that fresh to brackish and alkaline in nature. Piper's plot shows that the groundwater samples fall in the field of  $\text{CaHCO}_3$ , mixed  $\text{CaCl}_2$ ,  $\text{NaCl}$  respectively, according to the order of their dominance. From the Piper's plot, it is observed that all the samples were located near to the  $\text{NaCl}$  type water. Mostly this nature due to Sea water intrusion in the ground water table. Mostly it's observed in the driest period.