

HYDROGEOCHEMISTRY OF DEEP TUBEWELLS IN THE DRY ZONE OF SRI LANKA

- A CASE STUDY FROM MATALE AND POLONNARUWA DISTRICTS

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In Sri Lanka, construction of deep tube wells in rural areas of the dry zone has drastically increased during the last two decades. The water quality of deep tubewells which undoubtedly has an impact on the health of the consumers has shown a clear relationship with the hydrogeology, geomorphology and climatic conditions that prevail in the areas concerned. The chemical quality of the deep tube well water in the Matale and Polonnaruwa districts reveals that on the regional scale certain chemical parameters have a direct relationship with the mineralogy of the geological formations. Also the different geomorphological and climatic conditions in the area play an important role in the geographic distribution of the chemical parameters in the tubewell water. Due to the variations in the geological and geomorphological conditions within short distances, some chemical parameters show extreme irregularities within small areas. The ground water flow patterns of the Matale and Polonnaruwa regions are somewhat complicated, both because they are a part of the crystalline rock terrain of the island and because the region is divided into several independent drainage basins. However, an increase in the concentration of some chemical parameters can be seen in the direction of the ground water flow within each drainage basin. It is noteworthy that there are anomalously high concentrations of fluoride, iron, hardness and high electrical conductivity in some of the deep wells.