

Impact of Sea Water for the Quality of Ground Water in the Coastal Area of Panadura DS Division.

R.M.B. Madhuwanthi and R.U.K. Piyadasa

Department of Geography, University of Colombo

Water is one of the most valuable natural resources on earth. It is essential for all living beings to sustain their lives. Presently, the usable water quality on earth is decreasing rapidly. Therefore it is our responsibility to conserve the available water for future use. When considering coastal areas, it has many hydrological issues regarding drinking water scarcity due to salt water intrusion. The objectives of this study are to identify the impact of sea water intrusion on the quality of ground water in the coastal area of Panadura DS division in Kaluthara district, to identify the variations of ground water quality with reference to rainfall and to identify the spatial variations of water quality parameters. Both primary and secondary data were used in this study. First, an observation research was conducted to identify the wells of the area as an access to ground water. Ground water samples were collected from 20 wells by using systematic sampling method and the duration of collecting samples was 6 months. The quality of ground water was tested using several parameters of pH value, Electrical Conductivity, Total Dissolve Solids, Chloride (Cl⁻) and Sulphate (SO₄⁻²). Chloride (Cl⁻) and Sulphate (SO₄⁻²) concentration were tested by using chemical analysis. Ms excel, SPSS and spatial analysis tools of Arc GIS 10.1 were used for data analysis. According to the study there was no significant variation between rainfall and the water quality. However changes of water quality along the shoreline to the inland can be identified.

Keywords: Electrical conductivity, Chloride, pH, GIS, Sulphate