GROUND WATER SCENARIO AND SUSTAINABILITY OF GROUND WATER RESOURCES IN A SMALL TROPICAL CORAL ISLAND OF ANDROTH, UNION TERRITORY OF LAKSHADWEEP, INDIA.

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ABSTRACT

Ground water scenario and sustainability of ground water resources in Androth have been studied. In the study area phreatic water occurs under water table condition and floats as lens over the sea water of Lakshadweep Sea; and the principal aquifers are coral sands and coral limestones. The 36 coral islands of Lakshadweep islands (LD islands) including Androth are lying in Lakshadweep Sea. The area experiences high rainfall and phreatic water floats as a small lens over marine water. The study was intended to understand general physical set up and hydrogeology of Androth, identification of geochemical process, hydrochemical facies and evolution of ground water, check the suitability of water for drinking and irrigational purposes, and propose management initiatives for the sustainability of water resources of the island. The various layers are prepared by Map Info 11 and ground water estimation by GEC methodology 2015. The various cations and anions were estimated by ALPHA, 1995 methodology. The depth of the wells ranges from 2.55 to 5.90 mbgl and water level 2.45 to 4.70 mbgl. The ground water is generally under Na+-SO₄²⁻ type, shallow meteoric percolation type and alkaline (EC variation 481 - 843 micromhos /cm at 25⁰ C. The water samples in the study area are Ca-HCO₃ type (recharge type). The chemistry of the water is influenced by evaporation and water–rock interaction and aquifer materials. The evaporation process played major role in the evolution of water chemistry. The suitability of ground water in the study area for various drinking and irrigational purposes, ground management and sustainable development of ground water etc. are highlighted in the work.

Key words: Fresh water lens, Chloro alkali indices, Base Exchange indices, Ion exchange, Sustainability.