

HYDROGEOCHEMICAL ANALYSIS OF AQUIFERS OF YEDAPADAVU VILLAGE MOOBBIDRI TALUK DAKSHINA KANNADA DISTRICT

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ABSTRACT

Hydrogeological characteristics of deep and shallow aquifers around Yedapadavu village, Dakshina Kannada District have been exclusively monitored in Premonsoon and post monsoon season to assess its suitability for domestic and agricultural purposes. The open well and bore well samples were analyzed for various physico-chemical parameters like pH, Electrical conductivity, Sodium, Potassium, Chloride, Magnesium, Calcium, Total Hardness, Carbonate, Bicarbonate, fluoride, Total Dissolved solids and sulphate. The study reveals that most of these parameters fall within the permissible limits. Major ionic relationship indicates that weathering reactions have insignificant role in the hydrochemical processes of the shallow groundwater systems. Hydrogeological Processes controlling the water chemistry are precipitation rather than rock water interaction. Various determinates such as Sodium Adsorption Ratio, Sodium Percentage, Residual Sodium Carbonate and Kelly's Ratio revealed the most of the water samples are suitable for agricultural and domestic purposes.

Key words: Aquifers, weathering, water chemistry

1.0 Introduction

Water is precious and most commonly used natural resource and is one of the important and cheapest natural resources available on this earth from various resources available on this earth from various sources like Surface water, Ground water and Reservoirs etc. Earth surface is covered by 71% of water and remaining 21% forms the land area. Only 3% of the global content of approximately 1.4 billion cubic Km of water is fresh and suitable for human use. Of this about 77.2% is permanently frozen, 22.4% occurs as groundwater and soil moisture, 0.35% of fresh water is contained in lakes and wet lands, less than 0.01% in rivers and streams. The atmospheric moisture is about 0.001%. Thus fresh water is very limited resource. The Groundwater and Surface water in rivers and streams amount to a very tiny portion of the total water on the earth despite its importance to the mankind. The earth's water is in the constant circulation through the hydrological cycle involving evaporation, precipitation and runoff.

1.1 Study Area

Yedapadavu is a former village in Mangalore taluk, South Canara district, in Karnataka state of India. That was divided into Badagayadapadavu and Tenkayadapadavu. This village is about 21km northeast of the city Mangalore, connected via NH-169. According to 2011 census yedapadavu has a population of 10,221 and area of 25 sq. Km is well connected by all weather and roads. The study area is being one of the major cities on coastal Karnataka gaining economic importance due to urbanization and industrialization. The study area for our project consists of various schools and hospitals. Due to good