

A. Nagaraju¹, A. Thejaswi², Z. Sharifi³

**ASSESSMENT OF GROUNDWATER QUALITY AND ITS
SUITABILITY FOR AGRICULTURAL USAGE IN AND AROUND
RANGAMPETA AREA, ANDHRA PRADESH, SOUTH INDIA**

¹Department of Geology, S.V. University, Andhra Pradesh, India;

²Department of Environmental Sciences, Kakatiya University,
Talagana, India;

³Department of Soil Science, College of Agriculture,
University of Kurdistan, Sanandaj, Iran
huangyuanxing@usst.edu.cn

The aim of this study is to assess the groundwater quality of Rangampeta area for irrigation and domestic purposes. The groundwater samples were analyzed for distribution of chemical elements Ca, Mg, Na, K, Si, HCO_3^- , CO_3^{2-} , Cl and SO_4^{2-} . It also includes pH, electrical conductivity, total hardness, non carbonate hardness and total alkalinity. The parameters like sodium absorption ratio, adjusted sodium absorption ratio, sodium percentage, potential salinity, permeability index and residual sodium carbonate were calculated. The dominant hydrochemical facies of groundwater are Ca-Mg-Cl and Na-Cl Water Types. The Gibbs's diagram plots suggest that the chemical weathering of rock forming minerals is the major driving force controlling water chemistry in this area. The positive chloro-alkaline indices revealed that the groundwater has suffered ion exchange between Na and K of water with Ca and Mg of soil during its flow.

Keywords: groundwater quality, physico chemical parameters, rangampeta, south India.

Introduction

Groundwater is an important natural resource especially for drinking and irrigation uses. Water quality assessment is essential for human health and the definition of water quality depends on the desired use of water [1]. The variations of water quality are essentially the combination of both anthropogenic and natural contributions [2]. Natural variations in groundwater hydrochemistry should be considered when assessing water quality data from groundwater monitoring programmers, as elevated concentrations for certain parameters might be influenced by the aquifer lithology [3]. The groundwater chemistry is subject to continuous modifications in any given hydrogeological

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Received 13.02.2014