OMICS International
conferenceseries.com SciTechnol

3rd International Conference on
Earth Science & Climate Change
July 28-30, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

Assessment of groundwater quality and its suitability for irrigation and drinking purposes

N V Ramana Rao[1], **Kasi Viswanadh Gorthi**[1] and **M Mohan Babu**[2]
[1]Jawaharlal Nehru Technological University, India
[2]Sri Venkateswara College of Engineering and Technology, India

Groundwater has emerged as the primary democratic water source and poverty reduction tool in India's rural areas. On account of its near universal availability, dependability and low capital cost, it is the most preferred source of water to meet the requirements of various user sectors in India. Ground water has made significant contributions to the growth of India's Economy and has been an important catalyst for its socio economic development. Its importance as a precious natural resource in the Indian context can be gauged from the fact that more than 85 percent of India's rural domestic water requirements, 50 percent of its urban water requirements and more than 50 percent of its irrigation requirements are being met from ground water resources. Chittoor district is one of the chronically drought affected Rayalasema districts of Andhra Pradesh. Chittoor district is absolutely dependant on ground water for its irrigation and domestic needs. Based on the stage of development, 28 mandals are categorized as safe, 11 as semi-critical, 9 as critical and 18 as over-exploited. Penumuru mandal of Chittoor district which has 38% of excess rainfall and has been categorized as over-exploited as per stage of ground water development has been selected for present work, to assess the ground water quality and its suitability for irrigation and drinking. The quality of groundwater has been studied by collecting water samples from five villages of Penumuru mandal namely Matampalli, Gangupalli, Nanjarpalli, Satambakam & Settipalli. Twenty samples has been collected out which 19 has been collected from bore wells and 1 from Open dug well. These samples are analysed for groundwater quality for the following parameters/ions, viz., pH, EC, TH, DO, Na, K and Alkalinity. Dissolved oxygen content is within the permissible limit except in Matampalli village and its range in study area is in between 4-8mg/l. pH value in the study area is slightly alkaline. Total hardness and alkalinity were more than the permissible limit and water is not good for industrial purposes as it is hard, it can be used for drinking purposes as there is not considerable health effect due to hardness. Alkalinity is just a measure of acid neutralizing capacity of water so even its higher value is not harmful for its use in drinking and irrigation purpose. Normal range of alkalinity in the area of study is 500-1000 mg/l and the average value is 680 mg/l. Alkalinity is quite high and it shows higher resistance towards changes in pH. Sodium is slightly more than the permissible limit. The average value of sodium obtained is 235 mg/l which is more than the permissible value.

rao.nvr@gmail.com