

**SUITABILITY OF GROUND WATER FOR DRINKING, IRRIGATION
AND INDUSTRIAL PURPOSES IN NORTH EASTERN PARTS OF
ANANTAPUR DISTRICT, ANDHRA PRADESH, INDIA**

A. G. S. Reddy

Central Ground Water Board, SR, Hyderabad

Ministry of Water Resources, Govt. of India

E-mail: sugrive_59@rediffmail.com

Abstract

Ground water quality study is taken up in parts of Penna-Chitravati river basin falling in the northeastern parts of Anantapur district, in order to assess the suitability of water for various uses. As the area is underlain by varied geological formations, water samples were collected in pre-and post-monsoon seasons from ground water structures occurring in different geological horizons to study the variations in ground water quality with reference to drinking, irrigation and industrial uses. Major element analysis of the samples reveals that ground water quality, when compared with drinking water standards, has improved in post-monsoon season and is good in alluvium, whereas the quality is better in sedimentary aquifers than in granites. Suitability of water for irrigation purposes is studied applying various assessment methods like Salinity, Chloronity, Sodicity, SAR, %Na, RSC, Kelley's Index, Permeability index etc. Ground water in post- monsoon season and in sedimentary rocks is found to be of poor quality. Ground waters in post-monsoon season and in granites are suitable for industrial proposes. Contrasting results are found in ground water quality among different seasons and in different terrains with respect to its suitability for drinking, irrigation and industrial purposes as different bench marks are fixed for different purposes. Seasonal modifications in suitability of ground water for different uses are minor, but are significant among different geological formations owing to wide variation in mineralogical assemblages.

Keywords: Collin's ratio, Kelley's Index, Langelier Saturation Index, Sodium Adsorption Ratio, Sedimentary aquifer.