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GROUNDWATER POTENTIAL ASSESSMENT IN HARD ROCK TERRAIN USING ELECTRICAL RESISTIVITY SCANNING TECHNIQUE IN EASTERN PART OF CHITTAR SUB-BASIN OF TAMBARAPARANI BASIN, TAMIL NADU, INDIA

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Abstract

Groundwater potential was assessed using electrical resistivity scanning technique in the eastern part of Chittar sub-basin of Tambaraparani Basin. The study area is a hard rock terrain where hornblende-biotite gneiss is the major rock type. Buried pediment is the major geomorphologial unit and the major soil types are red sandy and black cotton. Electrical resistivity scanning was conducted at 12 locations over an interval of 150m each using 50 electrodes with interspacing of 3m. The interpreted image of geoelectrical resistivity section represented low resistivity of <60 Ohm m at all the locations and high resistivity of >500 Ohm m at Alagiyapandiapuram, Uthumalai and Vannikonendal. Resistivity range of 60 – 120 Ohm m was considered for locating /presence of possible groundwater favourable zones which were identified Alagiyapandiapuram, Ayyanarkulam, Nilithanallur, Rukkumaniammalpuram and Vannikonendal at shallow depths of <15m bgl with less layer thickness. It indicates that the eastern part of Chittar sub-basin area is lacking in secondary porosity and fractures and hence has a less scope for the presence of potential groundwater zones.

Keywords: Electrical Resistivity Scanning, Groundwater Potential, Chittar sub-basin