

DELINEATION OF THE GROUNDWATER POTENTIAL ZONES USING ELECTRICAL RESISTIVITY TECHNIQUE IN SA-2 MINI WATERSHED OF SINA RIVER BASIN, AHMEDNAGAR DISTRICT, MAHARASHTRA, INDIA

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Abstract

The objective of the present study is to identify suitable sites for groundwater potential zones by employing Vertical Electrical Soundings (VES) in the SA-2 mini-watershed area located in Sina River Basin in Ahmednagar District of Maharashtra. Seventy-two VES were carried out using Schlumberger configuration to characterise the subsurface geoelectrical properties of the study area along 3 profiles, viz., P1 to P3. Signatures of low electrical resistivity broadly indicate groundwater potential zones. Low resistivity of 30-50 m indicates good groundwater potential zones based on quantitative VES data interpretation and profile-cross sections, whereas high resistivity of 80-100 m and above indicates poor groundwater potential in the study area. In addition to true layer resistivity, the groundwater prospect map was categorised as high, moderate, low, and very low. According to this study, the area of study contains top soil, that overlies weathered/fractured/jointed basalts, fallows vesicular/amygdaloidal basalts, below the compact/massive basalts. The weathered and fractured/jointed basalts are considered to have good groundwater potential. NE-SW trend of the area indicates good aquifer potential zones, whereas the northern and eastern parts of the margin areas show low groundwater potential.

Keywords: Groundwater, VES, Geo-electrical, Aquifer and potential zones, Quantitative Interpretation