

Assessment of Groundwater Resources Using Resistivity Technique: A Case Study in and Around Tuppa, Nanded District, Maharashtra, India

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Ground water is largest directly utilized sources of fresh water on globe excluding river. The occurrence & exploration of ground water has always been challenging task in the crystalline rock including volcanic. In this regard, research work has been carried out to demarcate the drinking potential zone using electrical resistivity method. The study lies at 15 km from Nanded City covering an area of about 50 sq. kms. The geology of the selected area is mainly consists of Deccan basalts. The soil is of black color and is derived from by the weathering process. Basalts generally form multilayer aquifer system and have unique hydro-geological setting.

The electrical resistivity method is useful to investigate the nature of subsurface formation considering the electrical properties for exploration of suitable ground water. Total 10 soundings on different location have been carried out to explore groundwater for domestic and irrigational use. Results of curve matching technique suggest the three layered structure, where ρ_1 is having highest value followed by ρ_2 and ρ_3 which suggest the nature of the unconfined aquifer mostly and confined at Tuppa area. The resistivity ranges varies from 1.3 Ω -m to 45 Ω -m and reached up to 66 Ω -m for basement rocks. Such low resistivity values in second fractured zone suggest the suitability of groundwater for both drinking & agricultural purposes.

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