

Geophysical Investigation for Ground Water Studies in Raver Taluka of Jalgaon District, Maharashtra

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The present area under investigation of Raver Taluka is located towards north-eastern parts of Jalgaon district in Maharashtra State. The total geographical area under study is about 101097 hectares. The area is covered with undifferentiated Quaternary sediments and exhibits an undulating topography with southward gradient. The existing land use pattern of the area clearly shows that more than 60% of the area is utilized for agricultural sector. This area is famous for banana and sugarcane plantation. Ground water is the major source of irrigation and domestic purposes.

A hydrological investigation was carried out with the help of the well inventory data and utilizing geophysical techniques. Geophysical Exploration were carried out with the help of Resistivity Meter from 23 representative Vertical Electrical Sounding stations from the study area. Data obtained from resistivity in Raver Taluka of Jalgaon district in Maharashtra State, were interpreted by the Inverse-slope method of Sanker Naraan and Ramanujachari. Resistivity, values obtained showed a variation of between 0-3 ohm-m for clay/silt, 3-5 ohm-m for medium grained sandy layer, 5-7 ohm-m for loose sand and gravel bed, 7-15 ohm-m for clay with pockets of sand, 15-25 ohm-m for clay with lenses of sand, 25-45 ohm-m for compacted clay with pebbles, cobbles, gravels, 40-60 ohm-m for compacted clay beds, and over 60 ohm-m for hard and compacted lithological units, sites were recommended for dug wells/bore wells, 90% of which proved to be successful. The data thus recorded is found to be very much useful in the hydrological correlation studies.

The litho logs from the dug wells were correlated with investigation data. The Field observations and VES (Vertical Electrical Soundings) data indicates that typical behaviour of alluvial, (i.e. clay beds are generally pinches out towards north direction) is discussed. The survey emphasizes the need and importance for demarcating the productive areas in the area.

The authors conclude the paper with the opinion that the geophysical studies play a vital role in the overall water resources development of the area for better environment in future.

Keywords -: Geology, Hydrogeology, Resistivity data and Interpretation