



Static Water Level Dynamics of Unconfined Aquifer from Sasti Watershed, Central India

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Abstract

Present study elucidates the static water levels (SWL) of the Sasti Watershed, Chandrapur district, Maharashtra with special reference to lithological variations. The average pre-monsoon and post-monsoon static water levels (SWL) in the alluvial formation are 11.62 mbgl and 7.04 mbgl, respectively with 4.58meter water table fluctuation (WTF). The average pre-monsoon and post-monsoon SWL in the sandstone are 10 mbgl and 4.73 mbgl, respectively with the WTF 5.26 meter. The limestone formation represents average SWL of 6.5 mbgl and 2.15 mbgl in pre-monsoon and post-monsoon seasons, respectively with WTF 4.35 meter. On the other hand, the SWL in shale and limestone are present at 7.92 mbgl and 2.84 mbgl, respectively with the WTF 5.08 meter. The shale and pebble bed represent 9.6 mbgl and 1.5 mbgl SWL in pre-monsoon and post-monsoon seasons, respectively with WTF 8.1 meter, which is comparatively higher than other formations within the watershed. On the large scale, the SWL increase fairly from South to North direction and accordingly major regional direction of groundwater flow trends from South to North. The WTF in Quaternary alluvium indicates higher infiltration capacity as compare to the other formations. The limestone represents the shallow SWL in pre-monsoon and post-monsoon seasons with moderate WTF. The highest WTF is observed in shale and pebble bed, probably due to lower porosity and permeability. The result clearly indicates lithological control over the pre-monsoon and post-monsoon static water levels and seasonal water table fluctuations within the watershed.

Keywords: Groundwater, Lithology, Static Water Level, Water Table Fluctuation, Sasti Watershed
