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Demarcation of Groundwater Potential Zones in parts of Chandrapur and Gadchiroli Districts of Maharashtra using Integrated Remote Sensing and GIS

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Abstract

The advanced techniques like remote sensing (RS) and Geographical Information System (GIS) have emerged as rapid and cost-effective tools for natural resources management. The understanding on remote sensing data along with conventional and field validation makes it possible to identify different ground features *vis-a-vis* the groundwater potential. The present study area falls under the Chandrapur and Gadchiroli districts of Maharashtra State and is investigated with a view to assess the groundwater potentials. The thematic maps on geology and lineaments, geomorphology, land use/land cover are prepared using satellite image. The value to the individual sub-unit is assigned by considering the groundwater recharge and storage characteristics. The groundwater potential map (GWP) for the study area is evolved by integrating all the thematic layers and their weightages. The GWP map so obtained demonstrates five zones of groundwater potentials in the study area *i.e.* excellent, very good, good, moderate and poor. To verify the validity of GWP map, field validation was carried out on limited extent, which establishes good correlation between GWP map and the actual groundwater scenario.

Keywords: Remote Sensing, GIS, Groundwater potential map, Well inventory, Chandrapur district, Gadchiroli district, Maharashtra