

GROUNDWATER POTENTIAL ZONE FOR DRINKING PURPOSES USING GIS TECHNIQUE: A CASE STUDY IN HARUR TALUK, DHARMAPURI DISTRICT, TAMIL NADU

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Abstract

Changes in groundwater due to climatic condition over the years have imposed immense pressure on the global groundwater resources. As demand of potable water increases across the globe for human consumption, agriculture and industrial uses, the need to evaluate groundwater potential area for locating productive aquifers increases. In recent years, Geographic Information System has been playing a vital role and gaining prominence in groundwater exploration because it gives rapid information about the water resource for further developments and management at the village level. Therefore, the present study has been chosen with an objective to delineate groundwater potential at village level scale in the Harur taluka of Dharmapuri District in Tamil Nadu. A geographical information system and analytical data were used in the present study. A total of 7 thematic layers such as Geology, Geomorphology, Lineament density, Drainage density, Rainfall, Soil, and Slope were prepared and studied for groundwater potential zone demarcation. Weights assigned to each class in all the thematic maps were based on their characteristics and water potential capacity. Accuracy of the output was cross-validated with groundwater prospects of the area and the overall accuracy of the method was found to be around 90%. The groundwater potential zone map thus obtained was categorized into four classes-high, moderate, low and very low. The study has revealed that about 59% of the Harur Taluka is covered under moderate groundwater potential zone. The low and high groundwater potential zones were observed in 11% and 29% respectively. Area under very high and very low potential zones were recorded only in very limited areas.

Keyword: Groundwater Potential Zone, Weightage Assigned, Harur Taluka, Lithology, GIS Technique