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Assessment of Groundwater Potential Zones Using GIS Based AHP in Bangalore Region, India

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Abstract

Groundwater resources can be expected to be increasingly relied upon shortly due to rapidly growing population and global environmental and climatic changes. Groundwater is a vital resource contributing significantly in the annual supply of water for domestic, industrial, and irrigation sectors. This paper aims to groundwater prospect zones and their spatial distribution and couples this information with pollution parameters for groundwater prioritization. The study is carried out in the Bangalore region of Karnataka state, which is geographically located between 12.40° N to 13.20° N latitudes and 77.30° E to 78.00° E longitudes and covers an area of 1617.12 sq. km. Groundwater prioritization is one of the most important aspects of watershed management. Groundwater potential zones are optimized in the study by using the GIS based Analytical Hierarchy Process (AHP). Five groundwater prospect zones have been identified in the present study, ranging from a very good prospect zone to a very low prospect zone. The study area has only 7% of very good zones, about 19% of good prospect zones, and 36% moderate zones. This cautions the decision - makers and concerned departments to promote the scientific and sustainable use of groundwater for future needs and initiate the appropriate measures to develop groundwater resources

Keywords:

Remote Sensing, GIS, Groundwater Potential Zone, Analytical hierarchical process.

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