

## Application of RS and GIS Technique for Identifying Groundwater Potential Zone in Gomukhi Nadhi Sub Basin, South India

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**Abstract :** India holds 17.5% of the world's population but has only 2% of the total geographical area of the world where 27.35% of the area is categorized as wasteland due to lack of or less groundwater. So there is a demand for excessive groundwater for agricultural and non agricultural activities to balance its growth rate. With this in mind, an attempt is made to find the groundwater potential zone in Gomukhi river sub basin of Vellar River basin, TamilNadu, India covering an area of 1146.6 Sq.Km consists of 9 blocks from Peddanaickanpalayam to Villupuram fall in the sub basin. The thematic maps such as Geology, Geomorphology, Lineament, Landuse, and Landcover and Drainage are prepared for the study area using IRS P6 data. The collateral data includes rainfall, water level, soil map are collected for analysis and inference. The digital elevation model (DEM) is generated using Shuttle Radar Topographic Mission (SRTM) and the slope of the study area is obtained. ArcGIS 10.1 acts as a powerful spatial analysis tool to find out the ground water potential zones in the study area by means of weighted overlay analysis. Each individual parameter of the thematic maps are ranked and weighted in accordance with their influence to increase the water level in the ground. The potential zones in the study area are classified viz., Very Good, Good, Moderate, Poor with its aerial extent of 15.67, 381.06, 575.38, 174.49 Sq.Km respectively.

**Keywords :** ArcGIS, DEM, groundwater, recharge, weighted overlay

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