

Demarcation of Groundwater Potential Region Using GIS Techniques: A Case Study in Nintavur DSD

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ABSTRACT. An efficient planning of groundwater expansion using modern techniques is essential for the proper consumption and management of this precious but reduction natural resource. With the advent of powerful, professional techniques for water management have advance, of which GIS and RS (Geographical Information Systems and Remote Sensing) are of great significance. Groundwater resources potential has been evaluated in Nintavur DSD using GIS and RS techniques. With the help of Survey of Sri Lanka toposheets and satellite data, various thematic maps like base map, drainage map, geology map, geomorphology map, slope map, drainage density map, population density map and land use map of the study area have been prepared using Arc GIS software. These thematic maps have been integrated and appropriate weights have been assigned to various factors controlling rate of groundwater. The results show that there are four categories of groundwater potential zones ranging from very good to poor. The categorization of groundwater potential zones is in general agreement with the acquired yield data of the existing dug wells. This depicts the favourable potential zones in the study area for evaluation of groundwater resources. Finally it is concluded that the GIS and RS techniques are very efficient and useful for the demarcation of groundwater potential zones.

Key words: Groundwater, GIS, Groundwater Potential Zones, Thematic Maps, Spatial Analyst Tool.

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