



## **A Methodology for Identification of Potential Groundwater Recharge Zones in Hard Rock Terrain: CRUSTALWIN**

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Recharge is an important process by arresting runoff through suitable sites to restore groundwater conditions, where over-extraction of groundwater causes shortage of water for various purposes, especially in hard rock terrain like in India. The purpose of this paper is to manage groundwater conditions through an identification of recharge zones, using interactive and interdependent hydrogeological factors in a systematic way in hard rock terrain. A methodology, which is a relative ranking system called CRUSTALWIN, has been developed by assigning weights and ratings to the hydrogeological factors, depending upon their nature of interrelated characteristics that influencing the recharge process. These factors form the acronym CRUSTALWIN, which stands for climate, rainfall, land use, soil cover, topography, drainage area, lineaments, depth to water level, geomorphological indicators and nature of lithology. The relative ranking system, resulting from a combination of weights and ratings of hydrogeological factors, produces a numerical value called CRUSTALWIN index that classifies the area into recharge zones from very poor to very good types for effective infiltrating water into sub-surface strata for implementing appropriate water recharge management measures.