

GIS- based approach for rainwater harvesting site selection

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Abstract

The main obstacle to development in arid areas is the scarce and intermittent rainfall. Water harvesting is considered one of means to grantee the sustainability of water for use in domestic, irrigation and even industry. The current study carried out on Haqlan valley basin in western part of Iraq. The selection of suitable location for rainwater harvesting is based on different key determinates such as environment, hydrology, socio-economic, and topography as well as the estimation of the storage volume and the surface area. This study aims to identify the suitable location for rainwater harvesting using Geographical Information System (GIS) and remote sensing with multi-criteria decision techniques in the study area. Many thematic maps were extracted such as soil map, vegetation cover, land use/land cover, slope, and digital elevation model. The drainage network and the contour line map were used to suggest six sites in the study area. The result shows that the total suitable area for water harvesting was 28% of the study area, while 21% indicated moderate suitability. The proposed method is relatively supportive in analyzing geospatial data to determine and select the optimal site for rainwater harvesting and minimize evaporation losses