

Determination of Groundwater Potential Zone in Arid and Semi-Arid Regions: A review

1st Omar Adil Mohammed 2nd Khamis Naba Sayl

Abstract

In arid and semi-arid regions (ASARs) around the globe, groundwater is considered as an alternative source of water. Several methodologies and criteria have been applied and developed by many researchers to identify appropriate sites and mechanisms to detect groundwater potential areas. However, it is hard to determine the preferred method or instructions to select a suitable site. The primary purpose of this study is to determine an overall method for adopting Groundwater Potential Zones (GWPZs) in ASARs by gathering an inventory of the primary methods and criteria that evolved throughout the last few years. Seven main methodologies for site selection have been compared and summarized from 60 studies published in various scientific journals, information sources gained from practitioners or reports of international organizations. Geology, slope, soil, land use/land-cover, lineaments, and drainage are considered the most important criteria for the selection of suitable sites for GWPZs. When these criteria were counted, the detection of GWPZs had the tendency to increase, however, impartial evaluation of these chosen methods is still missing. The majority of studies now choose GWPZs sites using Geographic Information Systems (GIS) in integration with multi criteria analysis and hydrological models.