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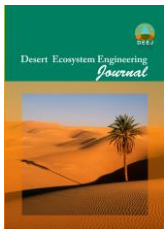

Investigation of Geomorphological characteristics and causes of Sinkholes in Abarkuh plain

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Extended Abstract

Introduction: One of the most important evidence of karst development is the existence of Devlin or sinkholes. Devlin is a natural depression in the karstic areas with internal or subcutaneous drainage. In recent years several genetic classifications have been published for sinkholes sink holes in these categories into two main groups sinkholes of "liquidation" and "depression" are segregated. The sinkholes are closed pits that form holes in the surface of calcareous and other soluble or alluvial soils, and generally runoff from the hole in the floor to groundwater Joins.

materials and methods: The study area with an area of 3714.43 km2 is part of the Abarkuh-Sirjan desert catchment area. Karsts of the region play a major role in the hydrology of the region, but because of the karst cavities in the area adjacent to alluvium, and with the maturation of the karsts, as well as the decrease of the surface area of the area, the internal pressure of the cavities was reduced and the gradual subsidence Alluvial layers are provided. Several cases of sinkholes and longitudinal gaps have also been observed in this area. The areas of occurrence of these hazards can be summarized as follows. 30 sinkholes in the study area. Abarkuh sinkholes on the plains can be divided into sinkholes and sinkhole mountainous desert divided. These halls are different in terms of shape, dimensions, structure, geomorphology.

Result: AHP model proposed measures are incompatible with a rate of 09/0 for the presence of soluble layers deep with standard weight of 30%, sediment texture (the sinkhole plain) and limestone formations (sinkholes mountain in) with a weight of 4.20 percent, down from 4.17 percent weight aquifers, irrigation system with a weight of 12.6% and standard user type, distance from the well of operation, distance from the old stream and fault by weight, respectively, 1/7, 8/5, 6/3, 1/3 were prioritized. Abarkuh plain is based on hydrograph of the underground water unit during the long period of 35 years, during the years 1360 to 1395, equal to 19.64 m (0.56 m per year), Investigation of the drilling log of some piezometers around plain sinkholes showed that the

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major part of the thickness of the saturated layers of these piezometers was micro-clay and silty granular materials, which in different horizons and limited thicknesses, granular materials Along with sand and The sand is also of different proportions and the stone floor is from calcareous marl .The amounts of chlorine, calcium and magnesium, carbonate and bicarbonate, lime, EC, TDS, PH, volumetric elastic modulus were measured in both fossils. The reason for these experiments is to determine the degree of solubility of the soil and sediments within the hollows. High amounts of lime percent, TDS and carbonates in the soil indicate relatively high solubility in the soils of the study area.

Discussion and Conclusion: The texture is very fine-grained sediments sinkhole plain and with a high percentage of clay content, lime and minerals to pump water from depths to agricultural use leads to dissolution and the resulting sinkhole plain holes as well as the location of sinkholes Abarkuh upstream mountain aquifer, which in recent decades has faced with a sharp drop in the aquifer, the crisis of falling into sinkholes and limestone formations mountainous phenomenon has created.

Keywords: Calcareous Formations, Analytical Hierarchy Model, Groundwater, AHP.