

## **Abstract**

The study aims to study the natural characteristics that affect the possibility of German harvesting in the basins of the western part of Samawah governorate. as well as demonstrating the impact of geomorphological factors and processes on the geographical distribution of the Earth's surface forms and their classification into geomorphological units and the geospatial distribution of unit items and their impact on the establishment of water harvesting projects. The study quantitative analysis of morphometric variables from cadastral, formal and topical characteristics and the German drainage network using quantitative statistical methods to identify the most influential variables in clarifying the region's hydrological features. Water harvesting methods that can be used in the basins of the study area have also been identified based on the results of the conformity within the environment of the ARC GIS v10.8 programme. The proposed dams as well as the lakes behind or in front of the dam and their storage capacity have been located and mapped.

Laboratory tests of groundwater characteristics were conducted in the study area as their suitability for various human uses was determined in comparison with global and local determinants and for the purposes of (human drinking water, irrigation purposes, animal drinking water) .

The total annual revenue of the study area basins (106.536) was 106.536 million/m<sup>3</sup>, with the amount of water revenues in the Wadi Umm al-Aqaf reaching 0.045936 billion/m<sup>3</sup>, equivalent to 45.936 million/m<sup>3</sup>, while the water revenue in the Wadi Umm al-Ark was 0.0606 billion/m<sup>3</sup>, equivalent to 60.6 million/m<sup>3</sup>.

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(Hydromorphometric Basin (Umm Al-Akaf and Hip) west  
of Muthanna governorate using GIS)

Letter from the student

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To the Council of the College of Education for Human Sciences, University of Wasit,  
which is part of the requirements for obtaining a master's degree in the geography of  
natural resources

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