

## **Abstract**

The Beliqan Valley Basin is one of the border valleys between Iraq and Iran. Administratively, this valley is located within the Sheikh Saad district of the Kut district, east of Wasit Governorate. This valley starts from within Iranian territory from the Hamrin mountain range and flows into Iraqi territory. Astronomically, it is located between latitudes ("0' 40 ° 32") ("0' 10 ° 33") north, and longitudes ("0' 22 ° 46") ("0 '28 ° 46") east. Most of its area lies within the Iranian borders. The total area of the basin is about (66.3) km<sup>2</sup>. The aim of the study is to know the identification of the most important natural characteristics of the study area, which is represented by the geological structure through the stratigraphy of the region and touching on the geological structure, as well as analyzing the terrain characteristics of the basin of the study area. In order to determine the slope, the direction of the slope and its prevailing intensity, as well as the study of climate characteristics and their impact on the hydrological characteristics of the Beliqan Valley basin, as well as the study of soil, its classification and the study of its physical and chemical properties, as well as the study of natural vegetation and focus on its quality and intensity of its geographical distribution in the study area. And also the analysis of the morphometric characteristics of the Beliqan Valley basin, as this basin formed a network of surface water drainage with its branches, as well as identifying and detecting the spatial, morphological and topographical characteristics, as well as studying and analyzing the hydrological characteristics of the Beliqan Valley basins, to address water scarcity and water deficit because the basins are located within the dry areas. If three hydrological models were used, which are the (Berkeley) model, the (Snyder) model, and the (SCS-CN) method, in order to estimate the volume, depth, and velocity of surface runoff, which depends on several variables, including: land uses in the region, and hydrological soil types, and the region was divided into Two groups of hydrological soils are represented by: the first class (C), which is a soil with low porosity and permeability, and the second class (D), which is a soil with high porosity and permeability. In addition to addressing the study of the qualitative characteristics of surface water and then evaluating it to find out its suitability for various uses, as well as studying the investments of surface resources in the study area and focusing on the investment of residential, agricultural and pastoral lands, as well as tourism and religious investment, and studying the possibility of water harvesting in different ways, as well as knowing and determining the evaluation environmental surface water of the study area.

Through the application of the (Barkley) model, the study showed that the volume of surface runoff for the basins of the Pelikan Valley amounted to (0.133) billion cubic meters, and according to the application of the (Snyder) model, the concentration time values for the study area basin amounted to (3.5) cubic meters per hour, and through the application of the model and method (Scs-CN). It turned out that the higher values are (93) and confirm that most of the basin area is located within the high (CN), and that it has the potential to generate a large surface runoff. Through laboratory analyzes of surface water samples in the study area, the study concluded that it is not suitable for drinking, but it is suitable for animal drinking to a good degree, in addition to being limited in some samples to irrigate most agricultural crops.

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# **Hydromorphometry of the Beliqan Valley Basin, east of Wasit Governorate, using Geographic Information Systems (GIS)**

**A message submitted by**

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