

EVALUATION OF IRRIGATION WATER QUALITY INDEX (IWQI) FOR AL-DAMMAM CONFINED AQUIFER IN THE WEST AND SOUTHWEST OF KARBALA CITY, IRAQ

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ABSTRACT

The main purposes of establishment of the modern village in Karbala desert, Iraq is to developing the agriculture plan in this desert of Karbala governorate. Thus, the main usage of the drilled wells in the study area is the irrigation. In order to assessment the groundwater quality for irrigation purposes in a way of high accuracy, the irrigation water quality index (IWQI) will be considered and developed in this research to classify groundwater of the Dammam confined aquifer within Karbala desert area. For this purpose, 30 wells distribution within study area were chosen to take water samples during March 2012.

Based on the results of the irrigation water quality index(IWQI) map, above 56% of the study area falls within the “Severe restriction” category, which is the dominant in the central and southeast parts of the study area. The rest of the study area, which is the 44% and below falls within the “High restriction” category, and it is dominant in the western parts the study area. These categories of groundwater should be used only with the soil having high permeability with some constraints imposed on types of plant for specified tolerance of salts..

KEYWORDS: Irrigation Water Quality Index, GIS, Dammam Aquifer, Karbala Desert, Iraq