

## **Abstract**

**Groundwater is one of the most important source of drinking potable and irrigation water for many communities. Regarding the fact that water quality directly affects the health of consumers, it is necessary to examine effective factors on water quality in terms of hydro chemicals. For this reason, several parameters are used in this study, including TDS and cation and main anions in water. When there are several parameters for evaluation, the evaluation task becomes more complex. Therefore, the AHP method was used which is one of the most widely used multi-criteria decision-making tools. In this study, for each parameter, a risk factor was considered. Then, based on the value of this coefficient, the values of both parameters were determined using the Expert Choice software and the weighting coefficient for each parameter was determined. To analyze and evaluate multi-criteria, the parameters must be matched to the measurement scale. For this purpose, the fuzzy logic method has been used which, by applying a certain function, has the highest value (1) to the maximum membership and the lowest value (zero) to the minimum membership. Therefore, the linear function was used, and the minimum and maximum values of each parameter were defined according to the Schuler classification and the global standard. Then, in order to value the parameters, the standard map of each parameter was multiplied in the weight which obtained by the AHP method and for evaluation and determination of the appropriate combination models, the fuzzy multiplication operator was use as the chosen model. The result of this combination showed that regarding availability of drinking (potable) and irrigation water most areas of the Plain of Minab are located in good area, but with regard to the coastline of the aquifer and the proximity of the western border to the coastal strip only parts of the plain in the southwest and west of the plain don't have proper quality.**

**Keywords: Groundwater quality, Minab plain, Analytical hierarchy process, Fuzzy logic, GIS**



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## **Hydrochemical Assessment of Ground Water for Drinking and Irrigation in Minab Plain**

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