Physical and Chemical Properties of Groundwater Dorz-o-sayban Plain, Fars, Iran

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Abstract

Groundwater is one of the most important sources of water supply, especially in arid and semi-arid regions. In these areas, the high dependence of the people on groundwater has made it essential and inevitable to monitor the quality these resources continuously. In this study, an attempt has been made to analyze the spatial and temporal variations in physicochemical quality parameters of groundwater of Dorz-o-Sayban plain, Fars, Iran in order to determine its suitability for drinking purpose through development of drinking water quality index (DWQI) maps of the post- and pre- monsoon periods. The groundwater suitability for drinking purpose was assessed by comparing the physicochemical parameters of groundwater in the study area with drinking water standards prescribed by the World Health Organization (WHO) and Iranian national standards (INS). Physicochemical data Interpretation shown that groundwater in the plain was slightly alkaline. The parameters such as TDS, EC, Na+, Cl-, So42-exceeded the permissible limits of the drinking water standards (WHO and INS) in most of the plain during both pre- and post- monsoon periods. The amount of some parameters such as TH and Ca+ has been decreased while the amount of potassium has been increased during the rainfall period. Magnesium and bicarbonate values in most of the plain area were in the maximum permissible range in both periods.

Finally, the survey of drinking water quality index (DWQI) maps showed that most of the groundwater in the study area is in the category of very poor quality and unsuitable water for drinking.

Keywords: Drinking water quality index, groundwater quality, Dorz-o-sayban