

The groundwater quality assessment of Fars province, Iran

Groundwater is an important supplier of irrigation and drinking water, and it has a strong impact on rivers and aquatic ecosystems. In the developing countries like Iran, 80% of all diseases are directly related to poor drinking water quality and unsanitary conditions. Water quality degradation can make it unusable for human needs and it has negative impact on the environment. Groundwater also plays a fundamental role on people's lives and economic development in developing countries such as Iran. Water consumption in Fars is about 10.5 billion cubic meters which 8.0 billion cubic meters is provided by the groundwater and 95% of the total annual water consumption is used for agriculture. Furthermore, Fars province is one the largest producer of wheat, corn, rice, and cotton in Iran. Therefore, it is essential to monitor and assess the groundwater pollution and provide measures to prevent from intensification of pollutions. This assessment is more noticeable in semi-arid regions such as Iran that experience water shortage problems. As a result, realistic understanding of the status of groundwater quality and the factors influencing them is necessary.

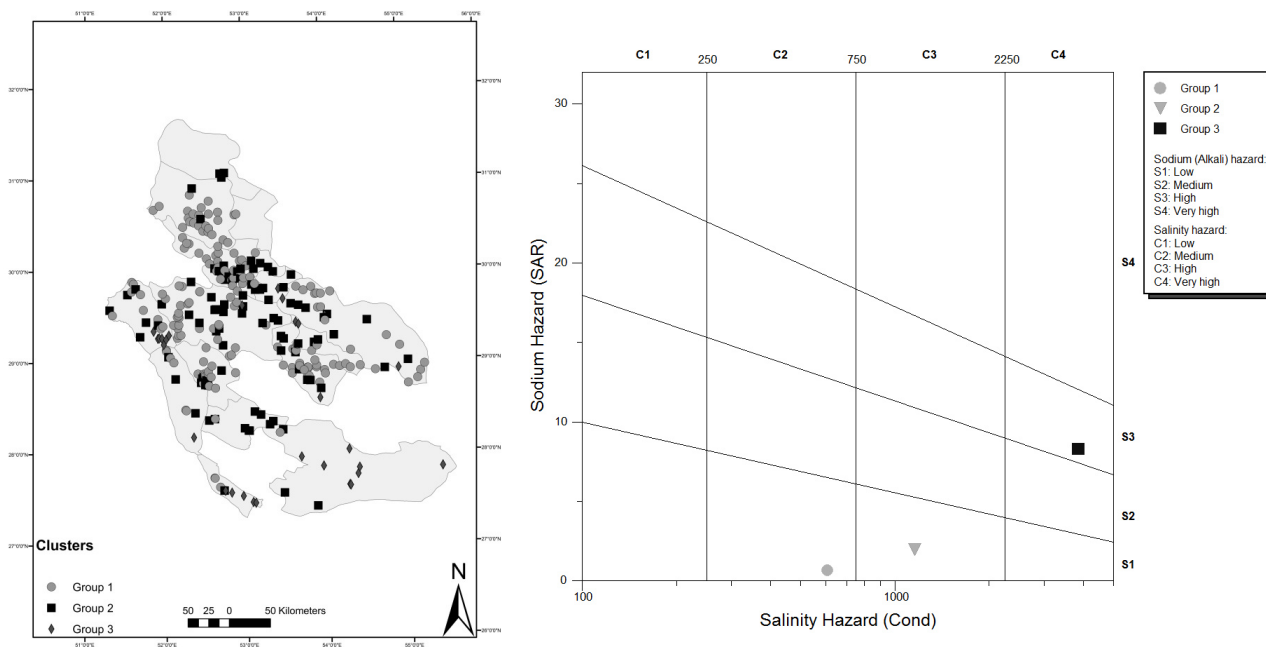


Fig. 1. Classification of sampling wells. Water quality diagram for irrigation purposes.

In this study, statistical techniques were used to identify the major factors affecting on water quality of deep groundwater and provide a reliable estimation of groundwater quality in Fars province during a 10-year period. Furthermore, water quality diagrams were used to illustrate the possibility of using well water for irrigation and drinking purposes. This insight hopefully would aid in ensuring

better water resource management in Fars province.

By using the statistical techniques on groundwater quality data, the wells classified into three quality groups. Analysis obtained from irrigation plot showed that the wells of the group 3 have very high salinity problems and high sodium hazard.

As a result, three main factors influencing the quality of groundwater in this area were salinity, weathering of silicate minerals and improper disposal of domestic wastes or the use of chemical fertilizers in agriculture.

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