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APPLYING WATER QUALITY INDEX TO EVALUATE GROUNDWATER QUALITY IN TWO PALESTINIAN GOVERNORATES

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Abstract

Groundwater is considered the main freshwater source for all uses in Palestine due to rapidly increasing demand and growing sanitation pressure. However, the quantity and quality of groundwater resources are deteriorating due to these anthropogenic pressures. Groundwater contamination can be harmful to human health and the environment. This intensified the need to evaluate and later control the groundwater quality. This research aims to characterize groundwater quality and to examine its compliance to be used as a potable water using the Water Quality Index (WQI) in Bethlehem and Hebron Governorates of Palestine. The 135 groundwater samples used in this research were collected by the Palestinian Water Authority in 15 combinations: 5 groundwater wells during 2020, and 5 groundwater wells during 2021 and 2022. The tested parameters were turbidity, pH, EC, Cl⁻, NO₃⁻, and hardness. The results show that the WQI values were less than 0.5 (Excellent) in 10 combinations, between 0.5 and 1 (Good) in four combinations, and greater than one (Poor) in only one combination. It also indicates that most measured parameters complied with the World Health Organization requirements of drinking water quality. It is essential to monitor and assess groundwater quality for a proper resources management, particularly in water-scarce countries such as Palestine.

Key words: groundwater, Palestine, water quality, water quality index

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