

## Evaluation of the Quality of Groundwater in the Zone of the Irrigated Perimeter Guelma-Boucheougouf, Northeast of Algeria

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**Abstract :** The Guelma-Boucheougouf irrigated area is located in the north-east of the country; it extends about 80 km. It was commissioned in 1996, with an irrigable area of 9250 ha, it spreads on both banks of the Seybouse Wadi and it is subdivided into five autonomous distribution sectors. In order to assess the state of groundwater quality, physico-chemical and organic analyzes were carried out during the low water period in November 2017, at the level of fourteen wells in the Guelma-Boucheougouf irrigation area. The interpretation of the results of the chemical analyzes shows that the waters of the study area belong to two dominant chemical facies: sulphated-chlorinated-calcium and Sulfated-chlorinated-sodium. The mineral quality of the groundwater in the study area shows that  $\text{Ca}^{2+}$ ,  $\text{Cl}^-$  and  $\text{SO}_4^{2-}$  indicate little to significant pollution,  $\text{Na}^+$  and  $\text{Mg}^{2+}$  show moderate to significant mineralization of water, closely correlated with very high conductivities.  $\text{NO}_3^-$  and  $\text{NH}_4^+$  show little to significant pollution throughout the study area. Phosphate represents a significant pollution, with excessive values exceeding the allowable standard. Phosphate concentrations indicate pollution caused by agricultural practices in the irrigated area, following the use of phosphates in the form of chemical fertilizers or pesticides.

**Keywords :** Algeria, groundwater, irrigated perimeter, pollution

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