

An Overview of Groundwater Chemical Facies and Quality for Sustainable Water Resource Management in Albania

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Groundwater is the lifeline of tap water for many cities in Albania, but its safety depends on regular assessments of its chemical quality. Pollution and overuse can silently affect its quality, putting both people's health and the environment at risk. Safeguarding this essential resource aligns with SDG 6, which calls for the protection and sustainable management of water for current and future generations. This study aimed to investigate the chemical quality of the Lushnja aquifer by analyzing samples collected during the autumn 2010 campaign. The results presented in this paper highlight the unique hydrochemical facies of the Lushnja aquifer, which are crucial for the effective management and protection of this important water resource. Understanding the groundwater's chemical facies is essential for assessing its suitability for drinking and irrigation, ensuring the well-being of the local population and the preservation of dependent ecosystems. This research also offers a clear picture of the groundwater's drinkability in the Lushnja region—an important step toward smarter water management.

Different groundwater facies were identified. The dominant group mainly consists of bicarbonate-alkaline-earth waters, or more specifically, Mg-Ca-HCO₃ facies. A second group, is characterized by Ca-Mg-Cl⁻/SO₄²⁻ waters. Additionally, some samples exhibit with chemical characteristics of the Na-Cl facies, and finally, only few samples show a Na-HCO₃ facies.

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