

Physico-Chemical Evolution of the Soil Water During an Artificial Recharge

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The artificial recharge of aquifers from artificial lakes or artificial treatment stations of waste waters is often taken into account in development projects. The major difficulties come from physico-chemical reactions between the injected water on the one hand, groundwater and the aquifer on the other hand. The dissolution-precipitation reactions as well as the ion exchange reactions are considered among the major problems conducted by the artificial recharge of aquifers.

Here we talk about the physico-chemical evolution of the soil water during an artificial recharge induced by the infiltration of the water stocked in a storm basin located on a stratified profile above an unconfined aquifer.

Chemical exchanges between the water coming from the lake by infiltration and the soil can contribute to the modification of the hydraulic parameters of the no saturated zone of the aquifer.

The pond we deal with is located at Louvain-la-Neuve in Belgium. For a matter of aesthetics, it was decided to transform this basin into an artificial lake by maintaining its plan of water at a more or less fixed level. It was necessary, as a result, to envisage a so quantitative as well as a qualitative monitoring of infiltrating water.

Equipping the lake with a monitoring well constitutes thus a true "natural" laboratory. This makes it possible to experimentally and at the same time in situ study an artificial recharge case.

The use of the results of such a study may be extended to other studies such as loss reserve bottom, artificial feeding of aquifers and water purification stations.

Key word: Artificial recharge; Louvain-La-Neuve; Bruxellien; aquifer geochemistry.