

Vulnerability and risk assessment for groundwater pollution: Application to Oulad Oghbane aquifer, (Morocco)

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SUMMARY

In this work we consider the problem of assessment and cartography of groundwater pollution risk. The risk remains difficult to approach, several methods have been proposed for its assessment according to its application field. In the case of groundwater pollution, the risk was estimated according to three parameters which are the severity of the pollutant, the frequency of its occurrence (probability) and the vulnerability of the area (Amharref and Bernoussi, 2007). For the evaluation of the probability some statistical studies should be considered. The severity depends on the type and the dose of the pollutant. Amharref and A. Bernoussi, introduced in 2008, for each pollutant, a proper severity index. As far as the vulnerability concern, which was introduced in hydrogeology by J. Margat in the 60s, it depends on the characteristics of the coverage area of the aquifer and the nature of the pollutant. Many methods of vulnerability assessment have been developed worldwide using different approaches ranging from complex models to index and weighting ones. As the risk assessment involves the notion of vulnerability, in addition to the severity and the probability of occurrence, we will show that the choice of a method for assessing the vulnerability is very important to assess the risk. Indeed we consider, in this work, a comparative study between two methods to assess the groundwater pollution risk based on two different approaches of vulnerability: DRASTIC and GOD. As an application we consider the case of the Ouled Oghbane aquifer (Morocco).