



Groundwater pollution risk assessment. Application to different carbonate aquifers in south Spain

A. JIMENEZ MADRID (1), C. MARTINEZ NAVARRETE (1), and F. CARRASCO CANTOS (2)

(1) Spanish Geological Survey, Madrid, Spain (a.jimenez@igme.es), (2) University of Malaga, Spain

GROUNDWATER POLLUTION RISK ASSESSMENT. APPLICATION TO DIFFERENT CARBONATE AQUIFERS IN SOUTH SPAIN

Jiménez Madrid, A. (1); Martínez Navarrete, C. (1) y Carrasco Cantos, F. (2)

(1) Instituto Geológico y Minero de España

(2) Grupo de Hidrogeología de la Universidad de Málaga

a.jimenez@igme.es

Abstract

Water protection has been considered one of the most important environmental goals in the European politics since the 2000/60/CE Water Framework Directive came into force in 2000, and more specifically in 2006 with the 2006/118/CE Directive on groundwater protection.

As one of the necessary requirements to tackle groundwater protection, a pollution risk assessment has been made through the analysis of both the existing hazard human activities map and the intrinsic aquifer vulnerability map, by applying the methodologies proposed by COST Action 620 in an experimental study site in south Spain containing different carbonated aquifers, which supply 8 towns ranging from 2000 to 2500 inhabitants.

In order to generate both maps it was necessary to make a field inventory over a 1:10000 topographic base map, followed by Geographic Information System (GIS) processing. The outcome maps show a clear spatial distribution of both pollution risk and intrinsic vulnerability of the carbonated aquifers studied.

As a final result, a map of the intensity of groundwater pollution risk is presented, representing and important base for the development of a proper methodology for the protection of groundwater resources for human consumption protection.

Keywords. Hazard, Vulnerability, Risk, SIG, Protection