



Aquifer vulnerability maps and decision support systems for the sustainable management of groundwater resources in the Mediterranean area

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An integrated approach to pursue the protection of groundwater resources and to reduce their vulnerability was realised with the so called WATER-MAP initiative. The chief purpose is to contribute to the integrated groundwater resources management providing scientifically reliable data, methodologies and assessments to local authorities in order to develop optimal spatial development strategies. Practical experiences are realised in selected areas located in Greece, Italy and Malta. On the basis of detailed hydrogeological surveys, maps of intrinsic aquifer vulnerability are defined. These results are compared with potential sources of pollution and with the quality degradation of groundwater as a result of chemical-physical survey. The pollution risk is used to be considered in the spatial development planning process. The methods used to produce the vulnerability maps are DRASTIC and SINTACS. In addition, a Decision Support System (DSS) with information on land uses, populations etc will also be developed and implemented so as to facilitate and optimize the decision-making process involving the problems of land use, water management and environmental protection. The main advantages and the difficulties of this approach are described and discussed.