



## **Risk assessment of Managed Aquifer Recharge in Mediterranean basins**

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Managed Aquifer Recharge (MAR) can be affected by a series of events that can be considered a hazard for its operation. Those events represent different parts of the operation of a MAR facility like recharge, water quality and quantity, engineering works failure, etc. These events are classified into different issue groups: technical (quality, quantity, specific targets and structural damages) and non-technical (social, economic, legislation and governance). Hazards can be combined to quantify the risk of failure of the MAR facility. In this study, risk is quantified by means of a Fault Tree within a Probabilistic Risk Assessment (PRA) framework. The Fault tree developed consist of 65 events applicable to the operation phase of a MAR facility. That combination of events can lead to a failure (partial in the case of this work) of the facility which probability represents the risk. This methodology was applied to six different MAR sites located in five countries in the Mediterranean Basin. The probabilities of occurrence for each hazard were defined by expert criteria, provided by each manager of the studied facilities. We concluded that for all sites, the perception from experts about the non-technical aspects was similar or even higher than those of the technical ones. Regarding risk values, in three out of six sites the probability of failure evaluated exceeded 90%, while the other three sites, presented lower risks (75%, 29% and 18%) those differences in values are related to each site's characteristics.