

43. THE MAR AGREEMENTS: A NEW GOVERNANCE APPROACH FOR ADVANCING THE MAR IMPLEMENTATION

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Abstract:

Arid and semi-arid regions are increasingly grappling with water supply shortages, a problem expected to intensify due to the impacts of climate change. To address this challenge, the paper introduces a new governance approach for advancing the implementation of managed aquifer recharge (MAR): the MAR agreements for benefits sharing. The approach is centered on a participatory and comprehensive methodology to assess and enable the feasibility of MAR as a key climate change adaptation measure. The main components of the methodology include: 1) Designing and demonstrating a broader feasibility mapping framework that combines aquifer-dependent service demand, hydrological assessments of conventional and non-conventional water sources for MAR, and GIS-based multi-criteria decision analysis; 2) Creating a general, stakeholders-centered framework for participatory governance; 3) Assessing the reliability, vulnerability, and resilience of MAR through web-based numerical modelling; 4) Involving a broad range of stakeholders in a participatory, multi-actor process to ensure diverse societal engagement; 5) Establishing location-specific, binding or non-binding and agreements for MAR implementation. The paper will present the results from the AGREEMAR project with successful application and demonstration of the approach at different scales across four case studies in Spain, Portugal, Cyprus, and Tunisia. The resulting solutions are anticipated to help close gaps in the hydrological cycle, ensuring optimal water availability for domestic use, food security, and the protection of natural ecosystems throughout the Mediterranean region and beyond.