Thematic Area

Water Management

Action and Topic

RIA - Alleviating Mediterranean water scarcity through adaptive water governance

Budget

1.000.909 €

Duration

36 months

State and Coordinator Entity

GERMANY

Technische Universität Dresden (TU Dresden)

TECHNISCHE UNIVERSITÄT DRESDEN

Scientific Coordinator:
STEFAN, Catalin

Participating States/ 5

Research Units/ 6

Section 2

AGREEMAR

Adaptive agreements on benefits sharing for managed aquifer recharge in the Mediterranean region

Context

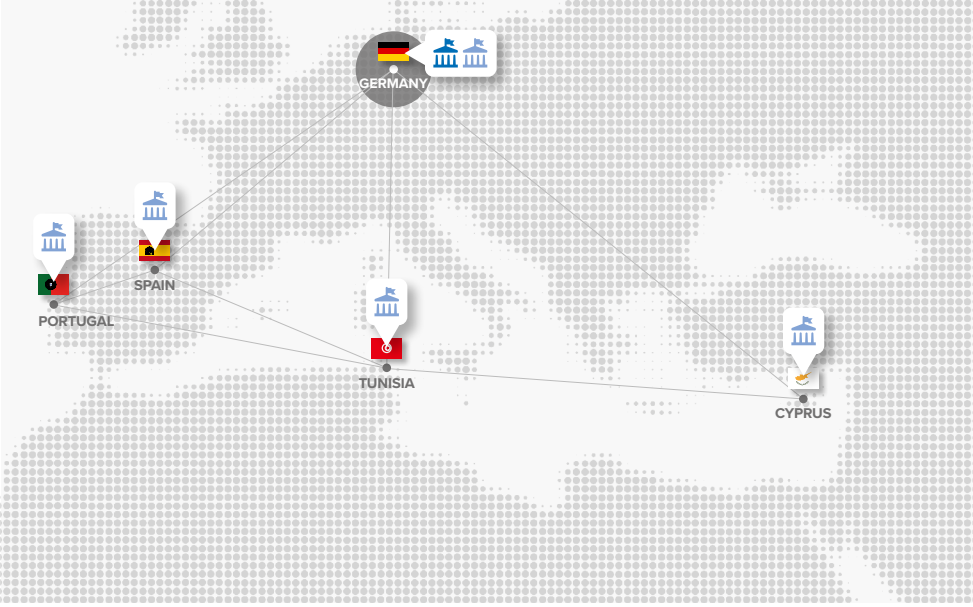
The countries in the Mediterranean basin have many features in common, including an arid and semi-arid climate, economic activities focusing on agriculture and tourism, and a solid financial and social value of water. Water resources availability is often characterised by uneven Spatio-temporal distribution heavily affected by agricultural intensification, necessary to sustain the rapid population growth and extensive and seasonal tourism in coastal areas. Aquifers play an essential role in providing several services to human activities, including storage and production of clean water (for drinking water supply, irrigation, etc.), flood mitigation, saltwater intrusion control and support to aquatic ecosystems. The Mediterranean region's low precipitation, high temperatures, and evaporation rates cause reduced surface water storage and quality (e.g., algae bloom and eutrophication) and thus increased pressure on aquifers for groundwater abstraction. In many places (especially in northern Mediterranean countries), aquifers are being over-exploited, i.e., the annual abstraction rate exceeds the recharge rate, in which case utilisation rate falls below the sustainability threshold. In coastal areas, this leads to seawater intrusion. Consequently, coastal communities increasingly suffer from insufficient supply of drinking water and decreasing quality of agricultural lands due to progressive salinisation of soils. This trend is expected to worsen due to climate change impacts.

Objective and contents

AGREEMAR proposes an improved and integrated management of water resources centred on optimising water storage in the subsurface to increase water security in the Mediterranean region. The project will develop an integrated, participative and coordinated methodology to assess and map the feasibility of nature-based groundwater solutions such as Managed Aquifer Recharge (MAR) for climate change adaptation.

The project methodology includes several components:

1. development and demonstration of a combined mapping methodology that integrates the demand for aquifer-dependent services, conventional and non-conventional water sources, and intrinsic site suitability for MAR application;



Other in Consortium/ 5

Adelphi Research gemeinnützige GmbH - DE

Cyprus University of Technology (CUT), ERATOSTHENES Centre of Excellence - CY

Universitat Politecnica de Valencia (UPV) - ES

Laboratório Nacional de Engenharia Civil (LNEC) - PT

Institut National Agronomique de Tunisie (INAT) - TN

Demo sites/case studies

4

Platforms/ Hubs

1

Managed Aquifer Recharge

2. validation of the feasibility maps through numerical models at watershed and local scale to assess the improvements in reliability, vulnerability and resilience provided by the inclusion of MAR schemes in water management schemes;

3. development of a general participatory governance framework at the regional level and implementation of co-created location-specific agreements for MAR benefits sharing, supported by scientific evidence and endorsed by cross-sectoral stakeholder groups;

4. participative multi-actor approach for fostering the engagement of stakeholders from different societal sectors and actor groups in all stages of project development.

Expected impact and results

The applicability of the AGREEMAR governance framework will be demonstrated at national (island), regional and local scale on four case study areas from Tunisia, Cyprus, Portugal, and Spain. The selected case studies will validate the proposed methodology and enable its integration into a larger context at the level of the entire Mediterranean basin. In the long term, a boost in MAR implementation will contribute to protecting and improving the services dependent on aquifers by maintaining or increasing the volume of water extracted for different uses, positive associated impact on other services and support to aquatic ecosystems. By developing, validating, and introducing an integrated MAR governance approach, AGREEMAR increases its acceptability and effectively implements MAR as a sustainable and integrated water resources management solution throughout the Mediterranean region. By selecting areas from EU and non-EU countries on both shores of the Mediterranean basin, AGREEMAR will foster intercultural and multidisciplinary collaboration and transfer between countries. The developed solutions are expected to close the gaps in the hydrological cycle and fulfil optimal water provisions for food security, domestic services and preservation of natural ecosystems in the Mediterranean region.

Keywords

#acquifer_governance **#groundwater** **#Managed_Aquifer_Recharge** **#modelling** **#stakeholders_engagement**