



## Project deliverables

# Deliverable #D6.4b

Minutes of the AGREEMAR mid-term meeting,  
7-8 September 2023, Valencia, Spain

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# AGREEMAR

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

## Deliverable #D6.4b

Minutes of the AGREEMAR mid-term meeting

### Author(s)

Jana Glass (TUD), Catalin Stefan (TUD)

### Executive summary

This report summarizes the AGREEMAR mid-term meeting that took place on 7 and 8 September 2023 at the main Campus of Universitat Politècnica de València (UPV), Valencia, Spain. In total 14 participants from all six project partners gathered to discuss the conducted and future work in the AGREEMAR project. The mid-term meeting was divided into two parts: a) Presentations on the progress of project activities, b) Field trip to the Spanish case study sites including meetings with local stakeholders.

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<b>Deliverable author(s)</b>	Jana Glass (TUD), Catalin Stefan (TUD)
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# Abstract

This report summarizes the mid-term meeting of the AGREEMAR project that took place on 7-8 September 2023 at the main Campus of UPV, Valencia, Spain. In total, 14 participants representing all six project partners gathered to discuss the conducted and forthcoming work.

The mid-term meeting was divided into two parts:

- a) Presentations on the main project results for each working package and the respective demo sites results
- b) Field trip to the Spanish case study sites: the Algar dam and the Belcaire pond, including meetings with the local stakeholders as well as visit to the Saint Joseph spring, caves and “underground river”, part of the Espadán karstic aquifer.

The two days spent together in Valencia helped to provide a better understanding of the outcomes of each work package, enabled the identification of synergies and interconnectivity among the research methodologies used in the project, validated the general project timeline, and strengthened the collaboration between the partners. This report includes a detailed description of the agenda with summaries of the presentations and brainstorming sessions, together with the conclusions and outcomes resulted from the discussions.

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# Minutes of mid-term meeting

## 1 Introduction

**AGREEMAR is a research project funded by national funding agencies from five countries under the Partnership for Research and Innovation in the Mediterranean Area (PRIMA). The PRIMA Programme is supported under Horizon 2020 by the European Union's Framework for Research and Innovation. The project proposes an improved and integrated management of water resources centred on optimizing the storage of water in the subsurface with the aim of increasing water security in the Mediterranean region.**

### 1.1 About the AGREEMAR project

The AGREEMAR project develops 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 in alignment to the IWRM principles. The project methodology includes several components:

1. development and demonstration of a combined mapping approach that integrates the demand for aquifer-dependent services, a realistic hydrological assessment of conventional and non-conventional water sources for MAR, and a GIS-based analysis for the selection of intrinsic sites suitable for MAR application;
2. development of a general participatory governance framework at regional level based on the results from the feasibility mapping and national policy analysis;
3. 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;
4. implementation of co-created location-specific agreements for MAR benefits sharing, supported by scientific evidence (feasibility maps and modelling) and endorsed by cross-sectoral stakeholder groups;
5. a participative multi-actor approach for fostering the engagement of stakeholders from different societal sectors and actor groups in all stages of project development.

The applicability of AGREEMAR governance framework is demonstrated at island, regional and local scale on four case study areas from Tunisia, Cyprus, Portugal, and Spain. By selecting regions 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.

### 1.2 The project mid-term meeting

#### 1.2.1 Meeting objectives

The second meeting of the project consortium took place in Valencia between 7-8 September 2023. The meeting was organised by Universidad Politècnica de Valencia (UPV) and the project coordinator at the campus of UPV. The main scope of the meeting was to present and discuss the results of the first 15 months of the AGREEMAR project, to create a common understanding of the coming project activities and to foster cohesion between the project work packages.

The expected outcomes of the meeting included:

1. information sharing and uptake of outputs resulted from each work package;
2. further development and adaptation of research methodologies;

3. validation and (if needed) adjustment of the overall project timeline, especially regarding joint activities at demo sites and stakeholders' engagement;
4. strengthening the collaboration between partners.

In order to achieve the proposed goals, the activities of the mid-term meeting were organized in different formats: a workshop focused on presenting and discussing the research conducted in each work package with detailed reports about activities conducted at the different demo sites, and a field trip for team building and follow up activities. All the slides presented during the meetings and a selection of photographs are available to consortium partners in the project Group Drive.

### 1.2.2 Meeting agenda

The mid-term meeting was divided into two parts, each taking place in one day:

- **Day 1:** plenary introduction of the meeting agenda (by TUD), followed by summaries of activities at work packages level (by WP leaders) and the results of the project demo sites in Spain, Portugal, Cyprus and Tunisia (by partners UPV, LNEC, ECoE and INAT)
- **Day 2:** field trip to the Spanish case study sites and synthesis of meeting activities

The detailed agenda is presented in the following:

#### DAY 1

**Venue:** UPV  
**Date:** Thursday, 7 September 2023

Time	Topic	Responsible
09:00 – 09:15	<b>Introduction of participants</b>	All
09:15 – 09:30	<b>General issues</b> Collecting aims, expectations from each partner, deadlines and time planning	TUD
09:30 – 10:30	<b>Work package 1</b>	adelphi
10:30 – 11:00	<i>Coffee break</i>	
11:00 – 12:00	<b>Work package 2</b>	ERATOSTHENES CoE
12:00 – 13:00	<b>Work package 3</b>	UPV
13:15 – 14:30	<i>Lunch break</i>	
14:30 – 15:30	<b>Work package 4</b>	TUD
15:30 – 16:30	<b>Work package 5</b>	adelphi
16:30 – 17:00	<b>Work package 6</b>	TUD
20:30 – 22:00	<b>Joint dinner</b>	

#### DAY 2

**Venue:** Algar dam and Belcaire pond case study area, Sagunto, Spain  
**Date:** Friday, 8 September 2023

Time	Topic	Responsible
08:00 – 15:30	<b>Field trip</b> 8:00 Boarding the bus at UPV 9:00 Visit to Algar dam and reservoir (MAR facility) and meeting with representatives of Sagunto Irrigation Association 10:30 Coffee break 11:15 Visit to Belcaire pond (MAR facility) and meeting with representatives of Vall D'Uxo Irrigation Association 12:40 Visit to karstic aquifer spring and caves (Saint Joseph) 13:30 Lunch and trip back to UPV	UPV
17:00 – 19:00 (approx.)	<b>Exercise work package 5 and wrap-up of mid-term meeting</b> Venue: UPV campus	adelphi, TUD



## 2 Presentations on the AGREEMAR project

### 2.1 Welcome and discussion of expectations related the project meeting

The day 1 of the mid-term meeting started with a round of introductions and a welcome addressed by Catalin Stefan, the coordinator of the AGREEMAR project. The introductory talk included the current project timeline and preliminary achievements of the AGREEMAR project: already 5 out of 12 Milestones are completed as well as 8 out of 18 Deliverables were published within the first 15 months of the project.

In a first round everyone's expectations of the mid-term meeting were collected to create a common understanding of the project subjects to be addressed in the following discussions. The topics proposed by the project partners for discussion included the integration of the results from the work packages (feasibility maps, models) to the overall local agreements at the case study sites. Furthermore, a roadmap should be developed to ensure the interconnectivity and interlinkages with regard to the various work packages including mapping, modelling and setting up agreements. Focus shall be laid on planning the joint publication of the feasibility maps in international reviewed journals and conferences and the training activities in the forthcoming year.

### 2.2 Presentations of work packages

Day 1 continued with the detailed presentation of all six work packages by work package leaders (about 10 min each) with a following presentation of the current work status at each case study site. The aim of this session was to enhance the understanding of the work conducted, validate and update the list of expected results, and identify dependencies and synergies within the project.

#### 2.2.1 WP1: Fostering stakeholders' engagement (*Anika Conrad, adelphi*)

##### *Short description:*

The needs, capacities, roles, responsibilities and commitment as well as engagement of stakeholders from four Mediterranean case studies were mapped at national/regional/local level and analysed for the development of the feasibility maps, the elaboration and endorsement of adaptive agreements, and their implementation for a local MAR system.

##### *Specific objectives:*

- To guide project partners in effectively engaging stakeholders during AGREEMAR activities and beyond
- To identify roles, responsibilities, influences, interests and needs of stakeholders for the preparation of project results including MAR feasibility maps, MAR governance framework and MAR agreements
- To assess stakeholders' needs to best tailor and customise project results
- To provide a stakeholder engagement strategy and plan that form a common basis for participatory, inclusive and integrative project development
- To increase the awareness of stakeholders and local/regional decision makers and the acceptance of the public about MAR

##### *Key statements:*

- WP1 supports stakeholder engagement in all project activities, starting with cross-sectoral assessment of stakeholder needs, information collection through surveys and questionnaires, as well as practical engagement with important drivers;
- The detailed work plan of WP1 includes a step-wise approach:
  - o identification and grouping of relevant stakeholders according to their needs
  - o analysis and categorisation of identified stakeholders according to their interest and importance for the project
  - o engagement and outreach to derive specific strategies and support project activities
- Interaction with other work packages and support for activities at demo site level is paramount

- Update on the status of the stakeholder engagement plan including conducted and upcoming activities including their scope and target groups

*Results:*

- D1.1a Preliminary analysis of project-relevant stakeholders and D1.1 Stakeholder engagement strategy and plan are published including supportive material to be used for local stakeholder engagement at the demo regions:
  - o stakeholder maps
  - o interest-influence grids
  - o description of suggested engagement formats
  - o templates for Memorandum of Understanding for improved stakeholder engagement
  - o stakeholder engagement plan including institutional setting at the case study sites, influence-interest grid, memorandum of understanding
- KPIs for engagement formats are already advanced
- Stakeholder needs assessment report

*Discussion on stakeholder engagement at the AGREEMAR demo regions:*

- Lessons learned from stakeholder missions
- Whether the stakeholder engagement strategy and plan were helpful
- What support is needed by project partners from WP1
- **Cyprus:**
  - o Stakeholders are generally open, concerns about wastewater quality (not meeting standards)
  - o Key stakeholders with most important participation in the project: Water Development Department (WDD) and the Geological Survey Department (GSD)
  - o Although the demo region is the entire island, separate engagement at each of the five districts was very demanding
  - o A geoportal exists but it is not detailed enough
  - o Informal meetings were very helpful for identifying the available data, and conducting the persons in charge in order to accelerate the data collection process. Still, some data were not provided in digital form due to security purposes, for example the wastewater distribution networks, in which case the Cypriot partner obtained this information by digitalizing sketches and maps from relevant reports.
  - o Skills and experience in organising interactive stakeholder events will be helpful from adelphi
  - o Agricultural supply scenario in MAR feasibility maps → a lot of collaboration with stakeholders due to the various sources of data which were required to complete the mapping process, and the necessity to consult several stakeholders to ensure the acceptance of the proposed methodology and the scientific outcomes.
  - o Information exchange and collaboration part especially with GSD and WDD, less interaction was done with stakeholders from academic sector (universities) due to the trivial role on the decision-making process.
- **Portugal:**
  - o MAR activities are very much promoted by LNEC, being AGREEMAR the 4<sup>th</sup> EU project on MAR
  - o Central water authority is not very supportive of MAR projects → focus rather on incrementing the natural recharge
  - o Water treated by Comporta WWTP is discharged into four infiltration basins
  - o AGREEMAR and another recently approved project (MARCLAIMED) shall contribute to increasing acceptance of MAR solutions
  - o WWTP Comporta should be more monitored --> new boreholes, sensors shall be installed
  - o Current effect of MAR on groundwater levels at Comporta has low expression, as the recharge amounts are limited (scenarios with different recharge volumes are foreseen)
  - o Focus on local agreements in the Comporta region are being considered (so far planned only for the case study site → upscaling?)



- Another possible agreement can be considered for a new golf course → need WWTP for the facility as its not allowed to use groundwater anymore to irrigate golfs
- Focus is being put in the regional water authority and Comporta owners (AgdA), a good idea to inform also the other stakeholders

– **Tunisia**

- Stakeholders are open and interact, provide information, but better to reduce the number as to increase efficiency
- Most stakeholders considered are in the “inform” and “consult” corner
- Four official missions conducted with interaction with most relevant stakeholders (online and by telephone)
- Better to focus on stakeholders that have the biggest influence on the decision
- Lack of technical knowledge about MAR and doubts about effectiveness of MAR due to the loss of the local MAR site → influenced by bad experience, struggling to convince that MAR would be a good solution → pushing for another side
- Steering committee includes key stakeholders, which is confusing
- How to increase engagement of the stakeholders? Focus on influence on decision, offer technical trainings in modelling to increase local capacities.

– **Spain**

- Regular talks with stakeholders
- Main difficulty: how to integrate the needs of stakeholders into new agreements?
- Legal restrictions may limit the options available
- Belcaire pond: issue of cost distribution of facility between the possible users of the infiltrated water
- Would be useful to reduce the number of stakeholders to the Jucar River Basin Agency (association of stakeholders and decision makers in the region)
- Biggest concern: the agreement itself → difficult in Spain between different stakeholders at different scales
- Beneficiary of MAR related to Belcaire pond → common interest and demands to the water authority → move towards rather that kind of agreements to push the agency to promote MAR
- Vision of MAR: MAR interest increased from dumping of water to integrated water resources management in Spain → changes in law
- Main input of adelphi to address the particular case of Spain → develop a roadmap to build the agreements
- Problem is that especially groundwater-related data does not exist → confirmed also by colleagues and stakeholders → some hydraulic conductivities and pumping rates are rather assumed
- Two options for WP4: very simple MODFLOW model or AQUATOOL models
- Mostly stick to one or two stakeholders → others should be informed as well about the project progress e.g., by sending the AGREEMAR newsletters

Main differences among case studies?

- Cyprus worked very closely with one key stakeholder (WDD), followed by the Department of Geological Survey. Both departments provided data, and participated during the different stages of the feasibility mapping process.
- Tunisia worked with many stakeholders that have conflicts with each other → heterogeneity of stakeholders
- Way to approach stakeholders was very different at the demo regions

*Upcoming activities:*

- D1.2 Awareness and outreach plan
- D1.3 Final DCSP

## 2.2.2 WP2: MAR feasibility mapping (*Anis Chkirbene, INAT, and Constantinos Panagiotou, ECoE*)

### *Short description:*

A set of methodologies for MAR feasibility assessment at national and regional level was developed, including a comprehensive matrix of feasibility criteria considering biophysical, technological, social, economic, environmental, hydrological, institutional, and financial indicators.

### *Specific objectives:*

- To develop and validate a participative methodology for the delineation of areas that are potentially feasible for the application of MAR
- To apply the methodology for feasibility mapping to the project demo regions

### *Key statements:*

- WP2 has a very important role in the project and is very well connected to the other work packages
- The methodology proposed for feasibility mapping follows the general approach adopted in the literature but it is extended by the inclusion of water demand and water availability
- Information relevant to MAR implementation has been collected from different sources of data, such as journal publications, conference papers, technical reports of on-going MAR projects around the world. The collected information was supplemented/calibrated with expert interviews and discussions with key stakeholders
- A classification system was proposed for the compilation of feasibility criteria matrix whereby the main challenge consists in the definition of guidelines for a semi-automatic criteria selection system
- The GIS-based mapping methodology implies the selection of thematic layers, collection of relevant data, criteria standardisation and weighting, compilation and validation of final map

### *Results:*

- D2.1 Matrix of feasibility criteria for managed aquifer recharge (published)
- D2.2 Participative methodology for criteria selection and weighting in MAR site feasibility mapping (published)
- D2.3 MAR feasibility maps validated for each demo region (confidential version submitted to PRIMA but not yet published on project website as to allow publication of results in journals)

### *Upcoming activities:*

- Dissemination of the scientific outcomes to the local, regional and national key stakeholders for validation purposes.
- Validation of maps having none to very low feasibility
- Prepare manuscripts which will be submitted to international conferences and peer-reviewed journals.
- Identify the most prominent regions for implementing MAR schemes, and focus on the local case study sites

## 2.2.3 WP3: Adaptive governance framework (*Rafael Bergillos, UPV*)

### *Short description:*

The adaptive governance framework for MAR benefits sharing could include drafting country-specific multi-sectorial, multi-stakeholder agreements on water allocation plans for MAR implementation, among other aspects. The general objective is to provide draft agreements for MAR among stakeholders from different societal sectors, integrating the general, regional and local scales, incorporating information and results from other work packages.

### *Specific objectives:*

- Incorporate indicators and operating rules in the agreements, which will facilitate decision making with integration of water quantity, quality, and environmental objectives for sustainability and climate change adaptation (CCA)
- Definition of a general draft governance framework for MAR, applicable to the Mediterranean region
- Identification of the specific requirements for setting up regional draft agreements tailored to the four project case studies

*Key statements:*

- Detailed governance agreements need to be tailored to the particularities of each demo region/site. For this, several contributions are needed from project consortium:
  - o Analysis of relevant stakeholders at each demo region (link to WP1)
  - o MAR feasibility maps for each region (WP2)
  - o Data and assistance for development of AQUATOOL (<https://aquatool.webs.upv.es>) simulations (link to WP4)
  - o Co-participation and engagement at demo sites in Cyprus, Portugal and Tunisia (WP1, WP5)
- Generation of water resources system at each case study: how does the MAR project fits into the entire basin? This will be assessed using AQUATOOL and will include:
  - o Testing different scenarios for the case studies where MAR has effects on the rest of water uses
  - o Indicators to assess the impact of MAR on demand and environment
  - o Conjunctive use of groundwater and surface water → combination with MAR
  - o Aquifer recharge (unmanaged) contributes significantly to the water resource system and needs to be taken into consideration

*AQUATOOL preliminary results at case study sites:*

- In **Spain**, AQUATOOL models for both case study sites (Algar dam, Belcaire pond) have been developed. At the Belcaire pond, the effect of different management options with regard to water demand is analysed.
- In **Tunisia**, a first AQUATOOL model has been developed. Scenarios were defined during the Mid-term Meeting: analysis of the influence of using treated wastewater in the coastal region (integrating wastewater volumes) and the influence of dam water release to the Chiba river
- In **Portugal**, after discussion with stakeholders, it was concluded that the application of AQUATOOL is not necessary, since the MAR facility is located near the coast and has no effects on the rest of water uses of the basin.
- In **Cyprus**, AQUATOOL development is pending and will start in the first months of 2024.

*Upcoming activities:*

- Development of a strategy for the governance framework including the various expectations and scales
- Constellation analysis was proposed for the general governance framework and is developed for the Portuguese case study site at the moment as a tool to contribute to local agreements.
  - o First step to define objective at the location
  - o Huge help to understand stakeholders, relation to natural resources
  - o Agreements should be done with the beneficiaries
  - o Build dependencies and connections
  - o A way to merge WP results and dependencies
  - o The connection to local agreements needs to be defined
  - o Could be discussed with local stakeholders to see extra issues, interconnections

## 2.2.4 WP4: Validation through numerical modelling (*Jana Glass, TUD*)

*Short description:*

The governance scenarios will be supported at local scale by groundwater flow models that will help to understand the response of the aquifer to the proposed interventions and to discuss with stakeholders' alternative scenarios including the no-action impacts.

*Specific objectives:*

- To validate the suitability of selected areas for implementation of MAR schemes using a participative, web-based modelling approach
- To assess the impact of MAR on the local water budget as a scientific basis for the negotiation of MAR agreements

*Key statements:*

- Two scales are considered in the modelling part using different modelling approaches

- Basin scale: analysis of regional water budget, influence of MAR on basin water management using AQUATOOL (<https://aquatool.webs.upv.es>) → see WP3
- Local scale: setup of groundwater flow model for case study sites to test different MAR methods, operational scenarios, and other management options including the impact of a business-as-usual approach using the web-based INOWAS platform (<https://www.inowas.com/>)

*Preliminary results:*

- The finalization of detailed modelling objectives for the case study sites was done together with the stakeholder consultations of WP2 (Task 2.6 Validation of MAR feasibility maps)
- Conceptual model setup at the case study sites (Task 4.1)
  - At Akrotiri, **Cyprus** data gathering took more time than expected due to its hydrogeological complexity and the need to gather various datasets, but a first numerical model has been setup and will be expanded and actualised with current data in the coming weeks
  - At Comporta, **Portugal**, a first numerical model has been setup but there is need for further hydrogeological data with regard to the local aquifer. This data was provided just before the meeting to the local stakeholders.
  - At the Belcaire pond, **Spain** data is currently missing to setup a reliable numerical groundwater flow model at local scale and stakeholders are consulted if more data can be obtained and how to proceed. If no further data can be obtained, AQUATOOL could be used instead to create scenarios at regional scale.
  - At the Chiba watershed, **Tunisia**, data collection for numerical groundwater flow modelling for the downstream region has been finished. The planned field experiments using electromagnetic soundings to better characterize the upstream aquifer section were postponed to October 2023. After that, the conceptual model will be developed.

*Upcoming activities:*

- The deadline for the conceptual model setup (Task 4.2) will be postponed from September 2023 to February 2024 due to the issues described above at the various case study sites. This will not cause any delays in other tasks related to WP4 or the overall project timeline.
- Data necessary for the setup of a numerical groundwater flow model at the Spanish demo sites insufficient. For Belcaire pond, the Jucar Basin Water Management Agency could be contacted for additional data gathering and to refine the modelling objectives
- After the setup of the conceptual base model, scenarios will be created after stakeholder consultations
- Training courses on numerical groundwater modelling together with stakeholder workshops planned in 2024 (an additional course was originally planned by TUD in Spain in July 2024 but it was cancelled as no MODFLOW model will be developed for the Spanish demo sites):
  - 04.2024 Portugal
  - 06.2024 Cyprus
  - 09.2024 Tunisia

## 2.2.5 WP5: Agreements implementation at local scale (*Ronjon Heim, adelphi*)

*Short description:*

The governance framework will be refined and specific agreements will be negotiated with local stakeholders.

*Specific objectives:*

- To conclude fitting MAR agreements and reinforcing their mandate within the local communities for specific MAR systems
- To establish follow-up committees for the respective agreements to ensure the sustainability of the just and efficient benefit sharing

*Key statements:*

- WP5 starts in 2024 so no detailed work plan can be developed yet in advance of the general governance framework
- Local agreements will be implemented for specific MAR sites → could range from being legally binding (as it could involve compensation) to just a memorandum of understanding

- Participatory approach will be enforced, building up on the outcomes from WP1
- Training activities will help to streamline the general understanding for MAR benefits
- Follow-up committees → regular meeting
- A methodology was presented by Teresa Leitão based on the constellation analysis method for the integration of different outcomes of the project

*Discussed points:*

- Groundwater models bring scientific evidence on what happens when water is infiltrated or taken from underground
- Follow-up committees should be defined in the agreements? = include the stakeholders of the agreement
- Regional agreements (WP3) as blueprint for different local agreements → template for different countries
- Examples of working and non-working MAR agreements from different countries have been presented by Ronjon Heim
  - o Japan: agreement for monitoring groundwater recharge
  - o Morocco: groundwater usage agreements (did not achieve the objectives due to lack of reliable data, under-staffed river basin agencies and counter-acting plans with stronger financial incentives)
  - o Spain: agreements to limit groundwater overexploitation in Western Mancha (goal not achieved as top-down approach, water user association not involved and complicated compensation from EU agri-environmental program)
  - o Berlin: urban water supply based on riverbank filtration (legally binding)

*Exercise to brainstorm ideas for local agreements at each AGREEMAR demo site:*

- For what challenges is an agreement required?
- Who needs to be involved?
- What does each stakeholder want (from others) and what does the stakeholder have to commit (to others)?
- How will the AGREEMAR results (maps, models, governance framework) be required for that purpose?

*Upcoming activities:*

- Develop the training activities (1 per demo site) together with WP2, WP3, and WP4

## 2.2.6 WP6: Project management (*Catalin Stefan, TUD*)

*Short description:*

The project is managed and coordinated by TUD together with the Principal Investigators (PI) from each partner institution and with direct collaboration with the WP leaders to ensure the successful implementation and the completion of milestones and deliverables.

*Specific objectives:*

- To fulfil the grant agreement with the funding agencies
- To ensure best possible project performance, including internal and external communication
- To successfully steer the consortium in compliance with the consortium agreement

*Key statements:*

- Although the project for German partners started one month later (1 July 2022), the work conducted so far was according to the original time plan
- Project website already online → D6.1 → [www.agreemar.inowas.com](http://www.agreemar.inowas.com)
- Detailed action plan based on discussions during the kick-off meeting in Dresden → D6.2
- Data management plan → 6.3
- SharePoint system and GroupDrive were setup as collaboration platforms for project management and data sharing
- Twitter account: <https://twitter.com/agreemarPRIMA>
- Risk management and contingency plan will be continuously updated
- Minutes of kick-off meeting published → D6.4a

#### *Upcoming events:*

- It was agreed that the next AGREEMAR project meeting will take place in **May-June 2024 in Cyprus** together with the planned training activities and governance workshops (later edit by Catalin Stefan: the meeting will possibly take place in Lisbon, Portugal, in conjunction with the 8<sup>th</sup> IAHR Conference)
- The final AGREEMAR meeting will take place early spring (**March**) **2025 in Tunisia**
- Project coordinator Catalin Stefan will participate in the PRIMA Projects Day, 21-22 November 2023 in Barcelona, Spain

## 3 Field trip

The field trip on the second day of the mid-term meeting included in total four visits:

### 3.1 Algar dam

*Visit of the Algar dam including discussion with local stakeholder (Irrigation Association of Sagunto) and visit to a local spring connected to the Algar dam, visit to the local office of the Irrigation Association*

The Algar dam was mainly built to fulfil two objectives: flood water protection and enhanced recharge of the aquifer. Due to current climate pattern, the Algar dam reservoir is mostly dry during the year. Although it rained two days prior to the visit, the water already completely infiltrated. Only the irrigation channel running along the dam holds water which is used to irrigate the downstream fields managed by the Sagunto Irrigation Association. Besides alluvial material, karst conduits exist where the water infiltrates very fast with some out-flow within one day at the natural spring Font de Quart de les Valls, around 8 km downstream of the dam. There the water is used for irrigation and reduces the amount of water that is pumped from the aquifer.

### 3.2 Belcaire pond

*Visit to the Belcaire pond including meeting with local stakeholder (Irrigation Association of Vall d'Uixó and AC-UAMED)*

The Belcaire pond was built for intermediate storage of excess water from the Belcaire river. The plan was to further infiltrate the water into infiltration wells to mitigate seawater intrusion and groundwater exploitation. Although the construction of the Belcaire pond was already finished in 2011, the administrative process including filling and emptying tests were only finished this year (2023). Until now, water from the pond was used to conduct one infiltration test at the infiltration wells resulting in quite low infiltration capacity of the wells. The remaining excess water was used for emergency water supply of the nearby town La Vall d'Uixó. Within the next months, the Belcaire pond will be officially handed over to the Jucar River Basin Agency which will decide how the pond will be used in the future. This opens up an opportunity for the AGREEMAR project to shape local agreements between the various stakeholders for sustainable water resources management.

### 3.3 Saint Joseph caves system

*Visit to the local karst cave system Saint Joseph*

Following the case study visits, we did a boat trip in the inside of the natural spring and cave system of the karstic aquifer (Coves de Sant Josep), which is the longest navigable underground river in Europe with a length of more than 3 km. It is an excellent and impressive example how groundwater can be made more visible to people outside of research (Geological Interest Site). The boat trip allowed besides spectacular views of the cave, for further AGREEMAR team discussions and to increase the team spirit.

### 3.4 Joint lunch with local stakeholders

A joint lunch together with the local irrigation associations and the whole AGREEMAR team allowed to deepen the discussions for the two case study sites. The full day field trip allowed to strengthen and deepen the professional relationship among the project partners and improve team building. The boat trip and lunch break were effectively used to continue discussions which evolved during the previous mid-term meeting sessions. After the field trip, the team returned to UPV to finalize the WP5 exercise and close the meeting.



## 4 Conclusions

The mid-term meeting provided each team member an update of the work conducted in the first 15 months of the AGREEMAR project and a discussion on the coming activities. The team engaged in detailed discussions on the objectives, case study sites and methodologies which are applied in the project. The working package interconnectivity became much clearer for all participants, although several issues need further discussions at work package level. For this, the momentum will be used to discuss the open questions and push the stakeholder involvement at the project demo sites.

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## Annex 1. List of participants

<b>Name</b>	<b>Institution</b>
Jana Glass	Technische Universität Dresden (TUD), Germany
Catalin Stefan	Technische Universität Dresden (TUD), Germany
Anika Conrad	adelphi research gGmbH, Germany
Ronjon Heim	adelphi research gGmbH, Germany
Constantinos Panagiotou	ERATOSTHENES Centre of Excellence (ECoE), Cyprus
Anis Chkirbene	Institut National Agronomique de Tunisie (INAT), Tunisia
Khaoula Khemiri	Institut National Agronomique de Tunisie (INAT), Tunisia (remotely)
Joaquín Andreu	Universitat Politècnica de València (UPV), Spain
Rafael Bergillos	Universitat Politècnica de València (UPV), Spain
Syrine Ghannem	Universitat Politècnica de València (UPV), Spain
Abel Solera-Solera	Universitat Politècnica de València (UPV), Spain
Javier Paredes-Arquiola	Universitat Politècnica de València (UPV), Spain
Teresa E. Leitão	Laboratório Nacional de Engenharia Civil (LNEC), Portugal
Tiago Nunes Martins	Laboratório Nacional de Engenharia Civil (LNEC), Portugal
Manuel M. Oliveira	Laboratório Nacional de Engenharia Civil (LNEC), Portugal
Keyla Alpes	Laboratório Nacional de Engenharia Civil (LNEC), Portugal (remotely)
Marcel Horovitz	Laboratório Nacional de Engenharia Civil (LNEC), Portugal (remotely)

# Annex 2. Photographs of the meeting

Internal project workshop at the UPV campus





Algar dam and the natural spring Font de Quart de les Valls



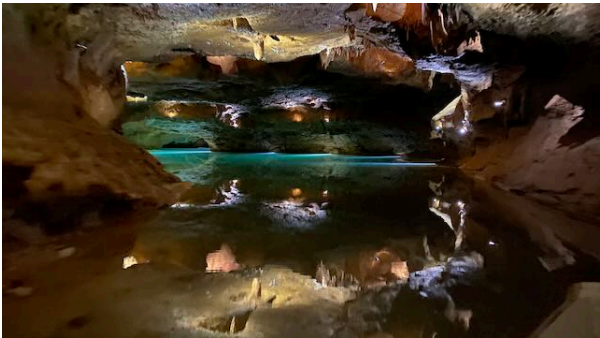


Belcaire pond





Saint Joseph caves system



(Photos: Catalin Stefan, TUD)