Innovative and Sustainable Groundwater Management in the Mediterranean

D7.4 REPORT ON MID-TERM WORKSHOP

VERSION 1.0

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Reviewer(s)	Janire Uribe-Asarta J. Jaime Gómez-Hernández			

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Glossary

BU	Boğaziçi Üniversitesi.
CERTE	Centre de Recherches et des Technologies des Eaux.
IIAMA	Instituto Universitario de Investigación de Ingeniería del Agua y Medio Ambiente.
IST-ID	Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento.
MED	Mediterranean.
NGO	Non-governmental organizations.
PC	Project Coordinator
PI	Principal Investigator.
TUC	Technical University of Crete.
UFZ	Helmholtz-Zentrum für Umweltforschung.
UNIPR	Università degli Studi di Parma.
UPV	Universitat Politècnica de València.
WP	Work Package.

Executive Summary

The overall objective of the InTheMED project is to implement innovative and sustainable management tools and remediation strategies for MED aquifers (inland and coastal) in order to mitigate anthropogenic and climate-change threats by creating new long-lasting spaces of social learning among different interdependent stakeholders, NGOs, and scientific researchers in five field case studies. These are located at the two shores of the MED basin, namely in Spain, Greece, Portugal, Tunisia, and Turkey.

InTheMED will develop an inclusive process that will establish an ensemble of innovative assessment and management tools and methodologies including a high-resolution monitoring approach, smart modelling, a socio-economic assessment, web-based decision support systems (DSS) and new configurations for governance to validate efficient and sustainable integrated groundwater management in the MED considering both the quantitative and qualitative aspects.

This Deliverable reports on the mid-term workshop of the InTheMED project that took place at UPV, Spain, from March 22nd to March 24th, 2022. The mid-term workshop represented an opportunity to meet in person, for the first time, all project partners since the beginning of the project. In the workshop, each partner did an update about the status of each WP, did a presentation on a non-related topic to spark new collaboration initiatives. Half-day was devoted to a mock-up of a Living Lab promoted by the Turkish partner.

1. Introduction

The Spanish partner hosted the InTheMED mid-term workshop at UPV from March 22nd to March 24th, 2022. The event happened with a six-month delay as initially planned due to the impact of the pandemics on the development of the project. All partners attended the event and had the opportunity to present the progress of each WP that they are leading, followed by a period of discussion about future plans and risks associated with each WP.

Moreover, each partner presented a non-related scientific work. These presentations were intended to spark new research ideas and collaborations between partners.

As not all partners have the possibility to participate in the Living Labs promoted by the Turkish team in Konya, half-day on March 23th, 2022, was dedicated to a mock-up of this event were each partner of the project played the role of a stakeholder.

Also, two guest presentations happened at the beginning of the workshop. The first from the PRIMA project 'eGroudwater', also coordinated at UPV and the second about the AQUATOOL, a software application developed at UPV to design specific Decision Support Systems of basins or water resources systems.

In total, there were sixteen presentations besides the welcome and closing sessions promoted by the PI of the InTheMED project.

2. Mid-term workshop

This chapter summarizes the mid-term workshop referring the main topics of each presentation. In total there were 23 people attending from all partners of the project.

Figure 1. Group photo of the participants of the InTheMED mid-term workshop.

2.1. Agenda

The mid-term workshop was held at UPV and spanned over three days, March 22nd to March 24th, 2022 following the agenda below. All times refer to CET.

March 22nd, 2022 · First session 13:50 – 18:30

13:50 Welcome by Coordinator

14:00 PRIMA sister-project eGroundwater, Manuel Pulido-Velazquez, PC, IIAMA

14:30 AQUATOOL, Joaquín Andreu, Inst. for Water and Environmental Eng. (IIAMA)

15:00 Work progress WP1 + discussion, Janire Uribe-Asarta

15:30 Imaging and modelling the ocean with seismic reflection data, Leonardo Azevedo

16:00 Coffee break

16:30 Work progress WP2 + discussion, Rafael Chavez

17:00 Water quality assessment in central Germany under droughts conditions, Seifeddine Jomaa

17:30 Work progress WP3 + discussion, Maria G. Tanda, Valeria Todaro and Daniele Secci

18:00 Probabilistic mapping of dam-break flood hazard, Marco D'Oria

March 23rd, 2022 · Second session 9:00 – 14:00

9:00 Mock-up living lab I

11:00 Coffee break

11:30 Mock-up living lab II

14:00 Lunch

Afternoon dedicated to social events to promote the networking between partners.

March 24th, 2022 · Third session 9:00 – 14:00

9:00 Work progress WP4 + discussion, Irem Daloglu

9:30 Soil Salinity and Sodicity Management in Semi-Arid Regions, Nadim Copty

10:00 Work progress WP6 + discussion, Ioanna Anyfanti and Constantinos Chrysikopoulos

10:30 Chromium in Asopos groundwater system: Modeling and measures, George Karatzas

11:00 Coffee break

11:30 Work progress WP5 + discussion, Hatem Baccouche, Thouraya Mellah, Hanene Akrout and Lobna Mansouri

12:00 The Tunisian Water Act reform: progress and SC engagement, Thouraya Mellah

12:30 Work progress WP7 + discussion, João Lino Pereira

13:00 Land use/land cover assessment over time using a new weighted environmental index (WEI) based on an object-oriented model and GIS data. Application to the evaluation of municipal solid waste landfills in the Valencia Region, Javier Rodrigo

13:30 Lunch

2.2. First session

The first session started with a welcome speech from the PC (J.J. Gómez-Hernández) greeting all the participants of the meeting and doing a brief overview about the status of the project and the agenda for the mid-term workshop.

The first presentation was delivered by Prof. M. Pulido-Velazquez (UPV) to showcase the PRIMA sister-project eGroundwater. In this presentation, the focus was on the global objectives of the project and the potential links with the InTheMED project.

The second presentation introduces a decision support system for groundwater systems developed at UPV, AQUATOOL. The presentation was delivered by Prof. J. Andreu and comprised a detailed overview of the software application and the development history of the tool.

Janire Uribe-Asarta (UPV) presented the work progress of WP1 pointing out all the management tools in-place and all the requirements that the deliverables of the project must have. Then, a brief description of the tasks developed by the Spanish team in the other WPs of the project was presented, focusing on the activities developed under WP3 and WP4.

The first non-related presentation was presented by Leonardo Azevedo (IST-ID) focused on the application of geostatistical geophysical methods to predict the ocean properties from seismic oceanography data. These inversion methods share the same methodological background of those applied under WP2 of the InTheMED project.

Rafael Chavez (UFZ) summarized the activities performed under WP2 highlighting the interactions between partners of the project. The data summarized so far was presented along with some preliminary modelling of the groundwater evolution in Europe.

This presentation was followed by the second non-related topic presented by Seifeddine Jomaa (UFZ). This presentation showed a real case application where climate change is dramatically affecting the groundwater availability in central Germany.

In the presentation related to WP3, the Italian team (UNIPR) presented the progress and the smart modelling solutions achieved for the Spanish, Tunisian, Turkish and Greek case studies. As the smart modelling of the Portuguese case study is still ongoing, there was a discussion about the potential risks of this delay for the project.

The first session ended by a presentation from Marco D'Oria (UNIPR) about the generation of probabilistic maps of dam-break flood hazard. This presentation described the methodological approach adopted and an application example.

2.3. Second session

The second session was devoted to mock-up Living Labs and led by the Turkish partner (BU). It started with an introduction to the methodology to be adopted, as described in "M4.2 Second Living Lab Scrutinizing and Refining the Conceptual Model". Then, all the participants were divided in three groups to represent different stakeholders. Each group discussed conceptual threats to groundwater systems in the Mediterranean region. This was as hands-on activities guided by the three experts of the Turkish team.

The second part of the session was dedicated to the analysis of the results and the real-time creation of a seed model given the inputs and results obtained during the first half.

This session was an excellent opportunity to all partners of the project to understand the dynamics of the Living Labs already performed, and to be performed, under the InTheMED project.

The remaining of the day was dedicated to social activities were all the teams promoted networking and explored collaboration opportunities under the project.

2.4. Third session

The third session started with the presentation of Irem Daloglu (BU), in which the summary of the work progress of WP4 was done. This presentation highlighted the Living Labs organized by the Turkish partner in Konya, with the purpose of mapping the stakeholders and identifying the key informants in the Konya basin to collaboratively characterize the socio-economic system and existing and anticipated sustainability problems. By identifying the main issues and proposed solutions, a conceptual model of the systemic resource overexploitation and degradation problems was created.

Following this presentation, Nadim Copty (BU) presented the fourth non-related topic. This presentation described soil salinity and sodicity management in semi-arid regions, by explaining soil salinization mechanisms and measures to mitigate this issue.

The work progress of WP6 was presented by the Greek team (TUC) and highlighted the development of the Fuzzy web-DSS tool. This tool will combine the available monitoring data with smart numerical modelling results to support the decision-making for optimal groundwater management. Additionally, transport and co-transport models of nanoparticles and nanopesticides in porous media were addressed, under the scope of WP3.

The fifth non-related topic was presented by George Karatzas (TUC) to showcase the CHARM Project. This presentation focused on modelling of chromium in Asopos groundwater system and on the identification of remediation technologies and measures to mitigate this issue.

Following this presentation the Tunisian team (CERTE) did a summary of the work progress of WP5, in which specific remediation strategies for the selected case studies were proposed. These strategies were defined based on an active engagement of local stakeholders and civil society, and specific characteristics at each site. The issue regarding lack of data availability and communication with the mining company that owns the mining concession area where Castro Verde case study is located was also discussed.

Thouraya Mellah (CERTE) presented the sixth non-related topic which focused on the ongoing reform of the main type of water governance models in Tunisia.

The work progress of WP7 was delivered by João Lino Pereira (IST-ID) and summarized the InTheMED communication and dissemination activities. The two-dimensional groundwater models of electrical resistivity obtained using a geostatistical inversion method under the scope of WP2, were also presented. In addition, the planning of an experimental test in collaboration with the Italian team (UNIPR), using a sandbox example to assess the reliability of modelling a contamination plume from geophysical data, was showed. Finally, an ongoing work in collaboration with the Greek team (TUC) on the Tympaki case study to predict three-dimensional models of electrical resistivity of the subsurface was presented.

The last non-related presentation was delivered by Javier Rodrigo and focused on land use/cover assessment over time using a new weighted environmental index based on an object-oriented model and Geographic Information System data. The application of this method to the evaluation of municipal solid waste landfills in the Valencia Region was shown.

The third session ended with a closing speech from Prof. J.J. Gómez-Hernández (PC) greeting all participants for the InTheMED work progress and remembering that all teams have to maintain the collaboration and cooperation to achieve the InTheMED project objectives.

3. Final remarks

The InTheMED mid-term meeting was successfully organized and encompassed the participation of all partners of the project. Each partner did an update about the work progress of each WP and an overview about the status of the project and future actions was made. Moreover, each partner also presented a non-related scientific topic with the purpose of sparking new research ideas and collaborations between each other.

There was also the opportunity for social activities to promote networking and collaboration opportunities under the project among the teams.