



Project presentation

01 March 2021



GOTHAM is part of the PRIMA Programme supported by the European Union. The PRIMA programme is supported under Horizon 2020 the European Union's Framework Programme for Research and Innovation. Grant Agreement number: 1922

Key information



- **Full Title:** Governance tool for sustainable water resources allocation in the Mediterranean through Stakeholder's collaboration – Towards a paradigm shift in groundwater management by end-users



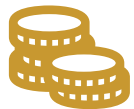
- **Goal:** Development and validation a user-driven tool that enables effective groundwater governance to ultimately preserve the quantity and quality of this strategic resource in the Mediterranean basin



- **Funding:** by the European Commission under the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) programme



- **36 Months** (04/2020 – 01/2023)



- **Budget:** 1,6 Million €

Consortium



7 partners



3 EU member-states
(Spain, France and Italy)



2 associated countries
(Jordan and Lebanon)



Objectives of the project



To develop a user-driven Groundwater governance Framework that could be applied in all the Mediterranean countries



To effectively implement agro-economic techniques to estimate agricultural water demand based on fruits & vegetables exports and market prices (monthly basis)



To carry out a comprehensive analysis and diagnostic of the water balance and water dynamics in Mediterranean groundwater bodies



To assess current agricultural water demand and future drought events using time series analysis and remote sensing methods



To determine the relationship between different explanatory variables (climate, pumping regime, water planning) and groundwater quantitative and chemical status



To calculate the potential feasibility and benefits of Managed Aquifer Recharge (MAR) and aquifer remediation as an additional groundwater decision tool

Expected Impacts

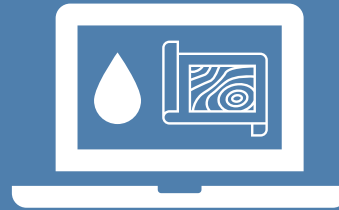


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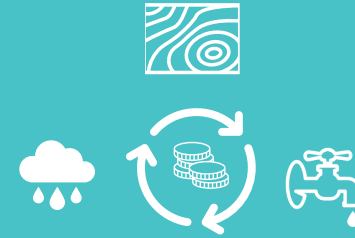
Development of a generic methodology for aquifer-scale water balance estimation, reducing the water balance uncertainty by 25%



The increase of water security and resilience in highly-stressed groundwater systems



Online groundwater monitoring to assess its hydrodynamic and hydrogeochemical functioning



Evaluation of cost-effective and high-efficiency managed aquifer recharge by developing a specific module for evaluating the feasibility of Managed Aquifer Recharge (MAR)

Development of a tool including 6 modules: (i) agro-economic module, (ii) user's engagement module, (iii) *groundwater response's module*, (iv) water balance & *water quality dynamics* module, (v) water availability and demand forecasting module and (vi) MAR and aquifer remediation module

GOTHAM Use Cases

**Campo de Dalías
Spain**



Known as the « Plastic Sea », this peninsula hosts intensive agriculture in Spain, under green houses. Intensive pumping of groundwater has led to changes in the aquifers' behaviour and to their deterioration and in the overall quality of water.



**Iaat, Baalbeck-Hermel
Lebanon**



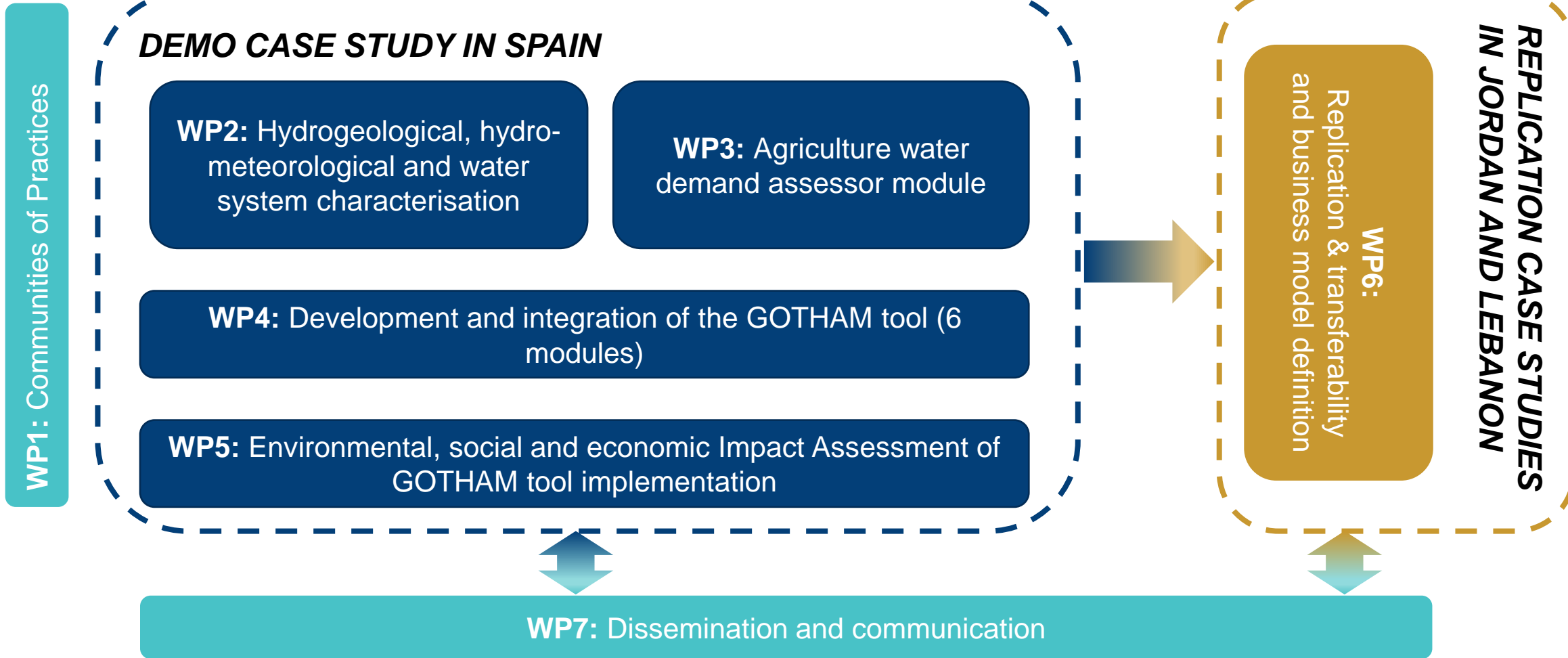
The excessive underground water pumping in this area has engendered a decline in the water table level and therefore, disappearances of the natural sites and pollution.

**Azraq Basin-Zarqa
Jordan**



The mismanagement of the groundwater due to the lack of control of the government regarding water use and due to the illegal drilling of water by private users results in a deterioration of water quality and quantity.

Project Activities



The Gtool specificities

The Gtool is an innovative groundwater management tool



Co-designed by all water stakeholders (regulators, end-water users, water producers and suppliers)



New groundwater *governance* framework based on users (bottom-up approach)



Long-term sustainable management of aquifers tackling their complexity in terms of uncertainty, surveillance and control by administrations

What is underneath?

- The project will provide a scalable and user-specific tool, the GTool for decentralizing water resources management.
- It will enable to clearly establish the responsibilities and competencies of each water user, depending on their role in water management.
- The GTool will leverage 6 analytical modules.

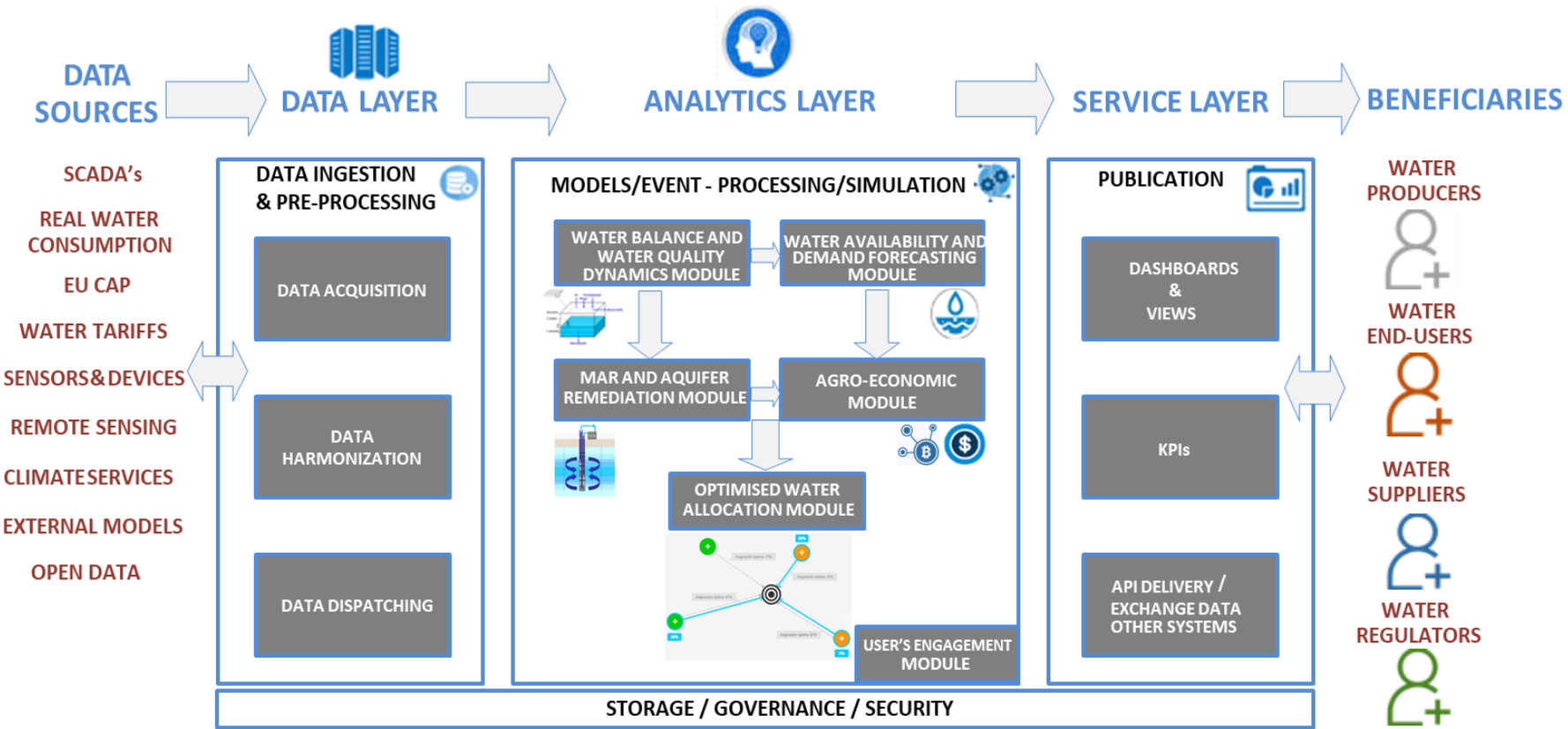
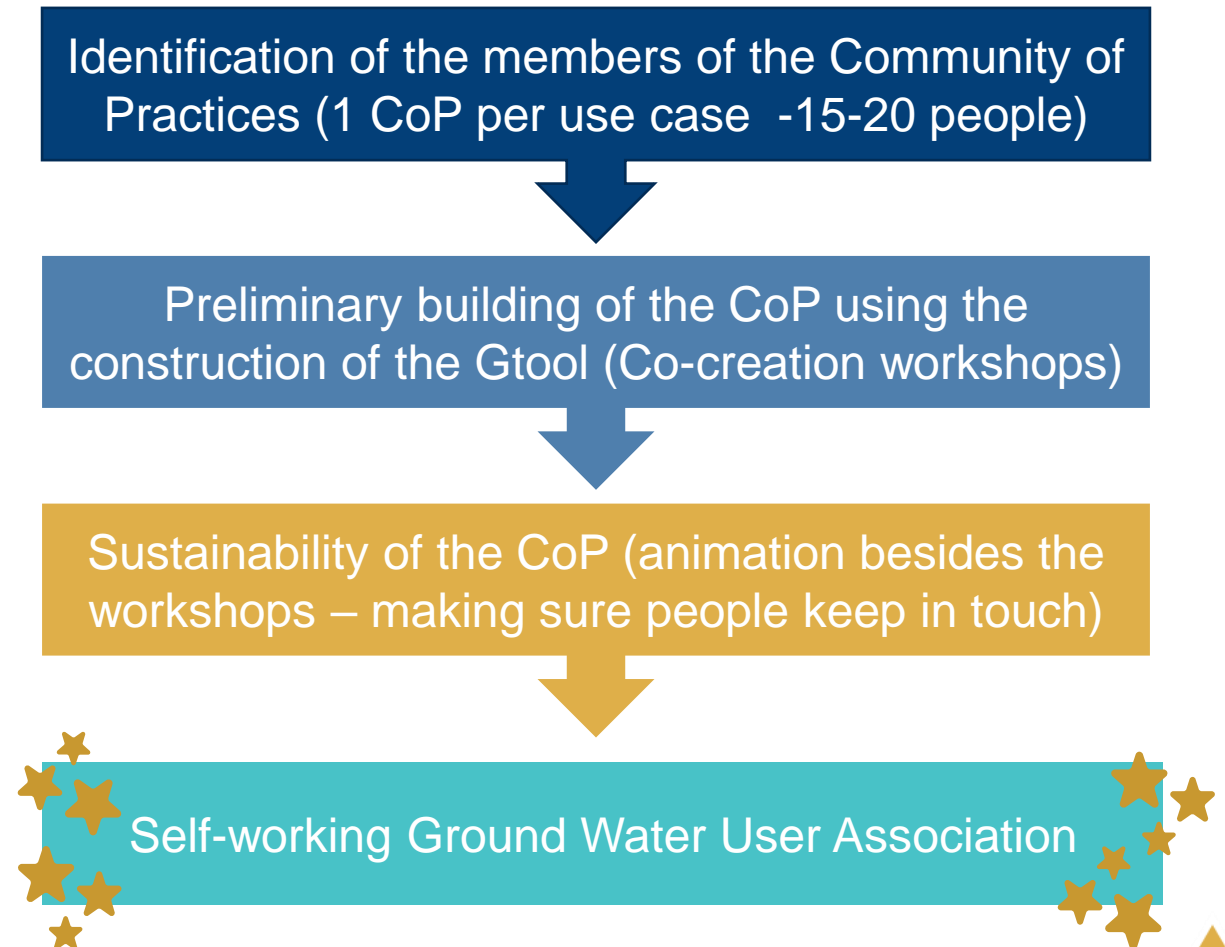


Fig. 2. GOTHAM Tool dataflow. MAR = Managed Aquifer Recharge; CAP = Common Agricultural Policy. The “Analytics layer” will contain the different GTool’s modules

Community engagement

- One of the objectives of the project is to create communities of practices in each use case region.
- These will gather stakeholders with conflicting interest in water
- They aim at creating a safe space where different people can share opinions and propose solutions for the shared management of their water sources



More information



www.gotham-prima.eu



<https://twitter.com/GothamPrima>



<https://www.linkedin.com/company/gotham-prima>