



SWAMED Project

The SWAMED (*Sustainable WATER management for smart agriculture in the MEDiterranean regions*) project was created to address one of the most critical challenges facing the Mediterranean area: the sustainable management of water resources in agriculture. Coordinated by the University of Campania 'Luigi Vanvitelli', the project involves partners from Italy, Tunisia, Egypt, Greece and Turkey. In a context of increasing water scarcity and climate change, SWAMED proposes an integrated approach that combines advanced technologies and participatory governance.

Strategic Objectives

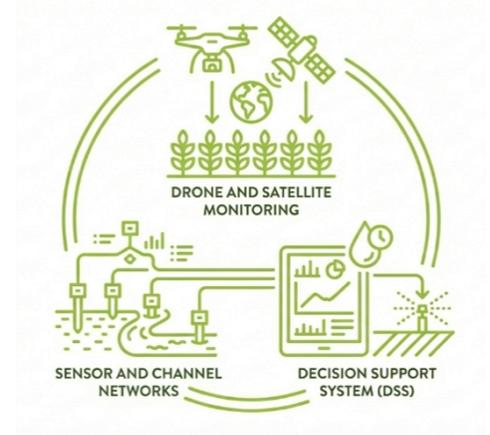
The main objective is to promote access to water and its sustainable management through the implementation of smart irrigation systems. Specifically, the project aims to:

- Develop an integrated monitoring and management system tested at four pilot sites;
- Adapt the WEFE (*Water-Energy-Food-Environment*) framework at the micro-company level to assess the impact of the solutions adopted;
- Increase stakeholders' awareness of rational water use.

Technology at the Service of Agriculture

The heart of SWAMED's innovation lies in the use of cutting-edge technologies:

- **Drones and satellites:** for monitoring vegetation cover and crop health;
- **Sensor networks:** positioned in the field and along the canals to measure soil moisture and water quality in real time;
- **Decision Support System (DSS):** a software platform that processes collected data to provide farmers with precise advice on when and how much to irrigate.





"Every drop counts: smart innovation for a resilient Mediterranean."

Impact

SWAMED will directly improve irrigation efficiency, reducing waste and losses along distribution networks. The system will enable a shift from traditional methods (such as flood irrigation) to data-driven precision techniques (drip or sprinkler irrigation). In addition, water quality monitoring will be improved, preventing pollution and ensuring fairer resource management during periods of drought.

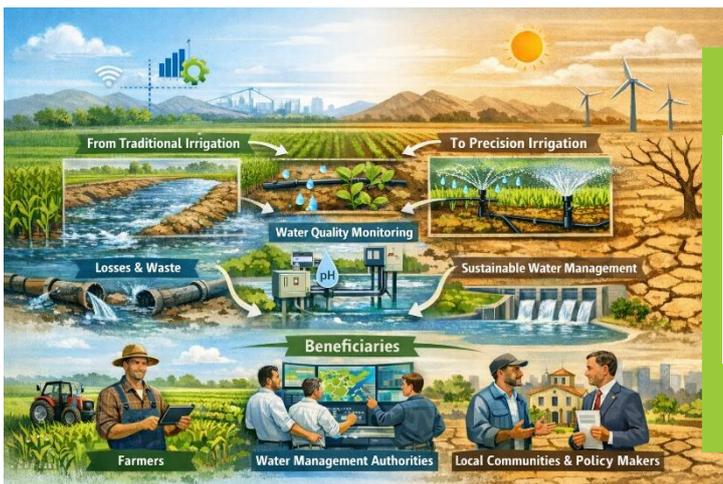
Beneficiaries

The project targets a wide range of stakeholders:

- **Farmers:** who will obtain tools to optimise yields and reduce costs;
- **Water management entities:** who will be able to better monitor flows and define more dynamic and fair pricing schemes;
- **Local communities and policy makers:** who will benefit from greater climate resilience and reliable data for spatial planning.

Expected Results

By the end of the 36 months of activity, the four pilot sites are expected to be fully operational and SWAMED solutions are expected to be adopted by farms and local authorities. The project will produce guidelines for the scalability of technologies throughout the Mediterranean.



Who benefits

- 200 farmers (at least 50% women) involved in training, stakeholder activities, and awareness-raising.
- 20 farmers directly participating in the pilot demonstrations and testing of the smart irrigation system.
- 4 water management authorities directly engaged in pilot sites for system deployment and monitoring.
- 20 staff from water authorities involved in training, multi-stakeholder activities, and knowledge exchange.
- Policy makers and governance actors supported with real-time data and tools to improve water allocation, pricing, and planning.
- Researchers gaining access to open data and a validated WEFE evaluation framework for future studies.



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SWAMED

DISSEMINATION & COMMUNICATION



MULTI-STAKEHOLDER METHODOLOGY



CONTRIBUTION TO POLICY MAKING



Dissemination and Communication

SWAMED's communication strategy is comprehensive and inclusive. It involves the creation of regular content for the official website, the organisation of public workshops and webinars, and the production of demonstration videos.

Particular emphasis will be placed on "stories from the field", with interviews with farmers involved in the pilot sites to showcase the tangible benefits of the innovation.

Multi-Stakeholder Methodology

Involvement is not only informative, but participatory. Through focus groups and training classes, partners gather the real needs of end users to calibrate technologies.

Lessons and teaching materials will be made available free of charge on the platform, or sent digitally, ensuring a long-term educational impact even beyond the duration of the contract.

Contribution to Decision-Making

SWAMED aims to influence regional and national policies on water management. The project will produce a White Paper and several Policy Briefs (one for each country involved). These documents will provide evidence-based recommendations for defining new governance models, water allocation schemes and more sustainable pricing policies.



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SWAMED

Programme Specific Objective: 2.3 (RSO2.5) Promoting access to water and sustainable water management

Total budget

2.745.200,00 €

EU co-financing

89%

EU contribution

2.443.228,00 €

Project duration

36 months

August 2025 - July 2028

Geographic coverage: Italy | Tunisia | Egypt | Greece | Türkiye

PARTNERS

Project Coordinator



Università
degli Studi
della Campania
Luigi Vanvitelli



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OF THESSALONIKI



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Interview with Prof. Luigi ZENI

Lead Partner of SWAMED for University of Campania "Luigi Vanvitelli"



Prof. Luigi Zeni is an internationally renowned expert in the field of sensor technology and photonics. A professor at the Department of Engineering at the University of Campania "Luigi Vanvitelli", he has dedicated his career to developing innovative technological solutions for environmental and structural monitoring. As coordinator (Lead Partner) of SWAMED, he leads an international consortium towards the integration of advanced monitoring systems for the protection of vital resources.

Prof. Zeni, what is SWAMED's biggest challenge?

The challenge is not only technological, but cultural. Bringing drones and sensors into the fields requires constant dialogue with farmers to make them understand that innovation is an ally of tradition, not an enemy.

Why focus specifically on the Mediterranean region?

The Mediterranean is a climate change hotspot. Water is already a scarce resource here, and social tensions related to its use are a reality. SWAMED aims to offer technical solutions to prevent these conflicts.

How will sensors change farmers' daily work?

They will eliminate uncertainty. Thanks to DSS, farmers will no longer have to rely solely on experience or "guess" when to irrigate but will receive notifications based on the actual needs of the plant and weather forecasts, saving water and energy.

What do you hope will remain of the project in ten years' time?

I hope that our WEFE approach will become the standard for assessing agricultural sustainability and that the pilot sites in Egypt, Tunisia, Turkey and Greece will continue to be beacons of innovation for their entire regions.



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