FINDING INNOVATIVE SOLUTIONS FOR WATER SCARCITY IN SOUTHERN EUROPE

2020 - First year of the European Programme that is supporting communities and seeking solutions to reduce and optimize water use

eit Climate-KIC

eit Food

eit Manufacturing

eit RawMaterials
Connecting matters

This project is supported by the EIT a body of the European Union

ATHENA Research & Innovation Information Technologies

BIOAZUL

Water scarcity: the greatest challenge

Water is the most precious and vital resource for humans and the ecosystem.
Water is seriously threatened by climate change as well as by the excessive withdrawal of industries, agriculture, cities. Waste, pollution, commodification and growing population have intensified the water scarcity, especially in some countries bordering the Mediterranean.

EIT Climate-KIC, EIT Food, EIT Manufacturing, EIT Raw Materials and Athena, BioAzul joint forces to face this real challenge with **Finding innovative solutions for water scarcity in Southern Europe**, a multiannual programme (2020-2022) to provoke change in the way we collectively use water sharing knowledge among a group of international experts called Body of Knowledge; nurturing innovations by supporting a 3 steps InnoWise Challenge Labs for bold entrepreneurs; powering education with a specialized Water Academy; telling new stories to engage people as agents of change.

Countries involved in Southern Europe

Greece

Sustainable water management is a challenge for the Ionian islands region in order to meet water requirements driven by different economic activities (tourism, agricultural, domestic and livestock). Innovative approaches in recording, monitoring and managing drinking water as well as improving existing water supply systems is required in order to get active protection and regeneration.

Italy

Italy is the first consumer of drinkable water in the European Union and policies to save water are not enough. It is affected by severe hydrological instability and there is a big issue in water networks, whose loss inefficiency is on average 47.9%. Water scarcity is particularly impactful in Southern Italy regions.

Spain

Many areas of Spain faced water scarcity for decades, and the situation is going worse by climate change. The main use of water is in agriculture and there have been advancements in the irrigation system. But water loss due to problems in water networks brings some municipalities up to 70%: the infrastructures are old however improvement requires a big investment and innovative ideas.

The promised island

Turning the best green and tech ideas into actionable solutions for water scarcity, promoting the transition to a sustainable and climate-neutral economy

The guiding star

A collaborative, co-creative and open minded approach to deeply engage individuals and teams; a systemic and holistic methodology to activate group's collective intelligence

The EU compass

1. Strenthening cross-networks to work together in innovation and entrepreneurship.

2. Boosting innovation in regions with modest to moderate rates in innovation, notably in Italy, Greece and Spain; creating startups and contributing to job creation.

3. Promoting synergies with Smart Specialisation Strategies and successful policy initiatives as a way of fostering financial sustainability.

The route to the promised island

Sharing Knowledge

Body of Knowledge: a group of 16 experts from different backgrounds worked together to identify the 6 key challenges around water scarcity, exploit synergies amongst regions with modest to moderate rates in innovation and create an active network of 50+ stakeholders to discuss about water challenges

Nurturing Innovations

InnoWise Challenge Labs: 3-step programme: training, mentoring and competition. After training and mentoring sessions in each of the countries ten startups competed showing their solutions during the InnoWise Challenge Labs. The winner of each country received EUR 10 000 and EUR 5 000 the second, at least ten entrepreneurs that worked to propose solutions to one of the 6 key issues designed by the Body of Knowledge

Powering Education

The Water Academies: 3 capacity-building trainings organised in Italy, Greece and Spain with the aim of stimulating a learning environment based on the latest findings, solutions and alternatives related to water scarcity. These Academies built a strong network of experts and strengthened the innovation ecosystem

Telling new stories

The communication strategy: digital channels and social media, vibrant design and content, video and visuals, interviews, podcast, talks and events online, campaign, training on proper communication were run to engage people so that they became agents of change walking toward a water-saving economy

Start 2020 — End 2022

2020 Timeline

Sharing Knowledge
Body of Knowledge online workshop

Nurturing Innovations
InnoWise Challenge Labs

15th - Greece
24th - Spain
8th - Italy

15th | 5th -6th | 30th - 1st | 3rd | 11th

JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC

Planning the programme and the activities

Powering Education
Water Academies

5th Italy
18th Spain
26th Greece

Telling new stories

Design and visual | Webinar | Podcast | Social campaign | Online talks | Pubblications | Website | Training on proper communication

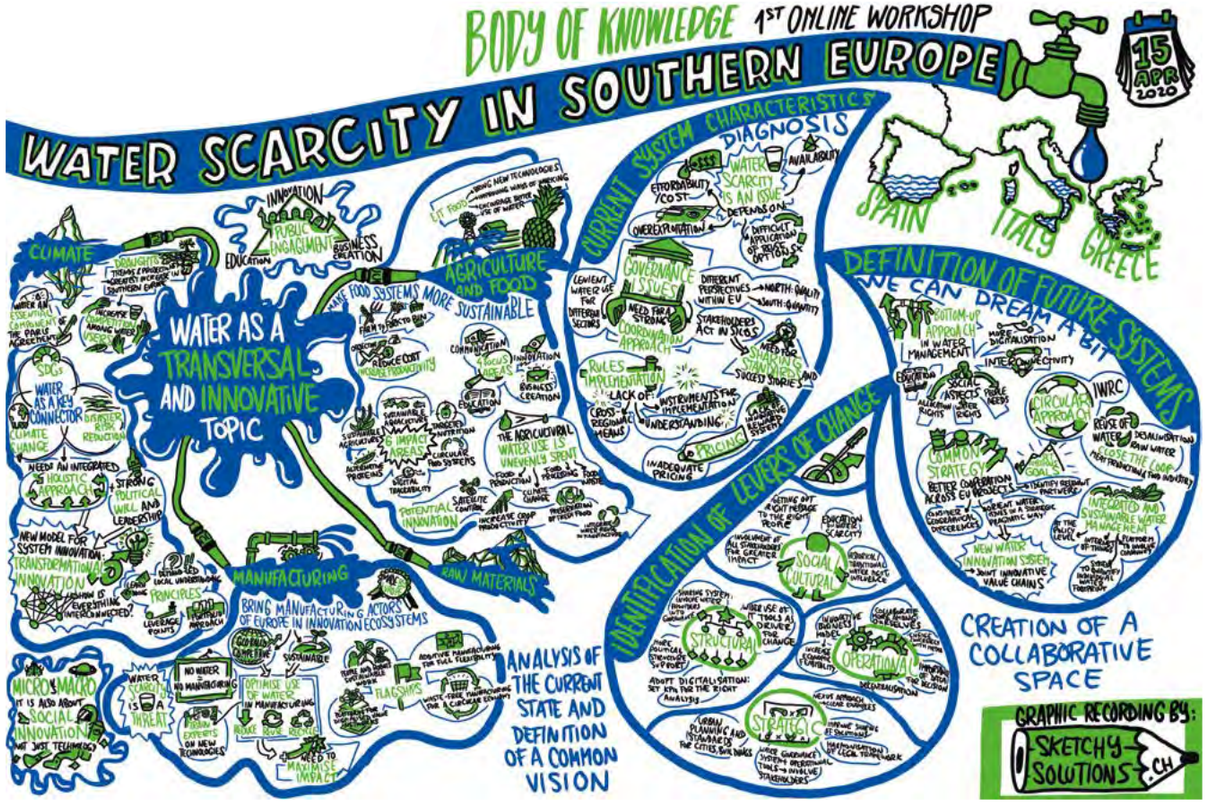
Sharing Knowledge

The first blue mile that the program went through was the founding of a body of Knowledge with 16 experts from different backgrounds that shared their research, studies and thoughts identifying 6 key challenges around water scarcity. Because of COVID-19 contingency planning, the Body of Knowledge began an online collective intelligence experiment, based on a texture of systemic approach, sense-making, facilitation techniques, graphic recording, technology and tools.

Experts were engaged on a of 4-stages journey

April 15th

Understanding the system: intent workshop.
The online workshop was designed to sense-make and gain clarity on the purpose and scope of the initiative, through keynote presentations and introductions by the convening actors. Secondly, experts began to exchange knowledge and ideas in order to build a shared understanding of the overall system of water management, research and innovation in Southern Europe.



Sharing Knowledge

May 5-6th

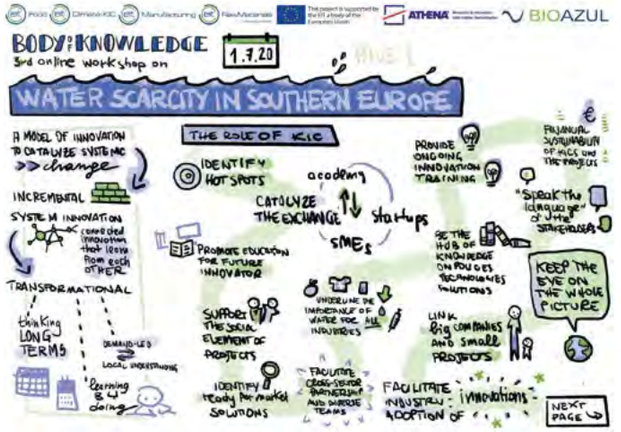
Defining the challenges: frame workshop.

The 2-days online meeting intended outcome was to reach an agreement on a set of six challenges and prioritised levers of action that would enable to trigger system change in water management in Southern Europe.

June 30th - July 1st

Identifying collaboration and partnership areas - Networking workshop.

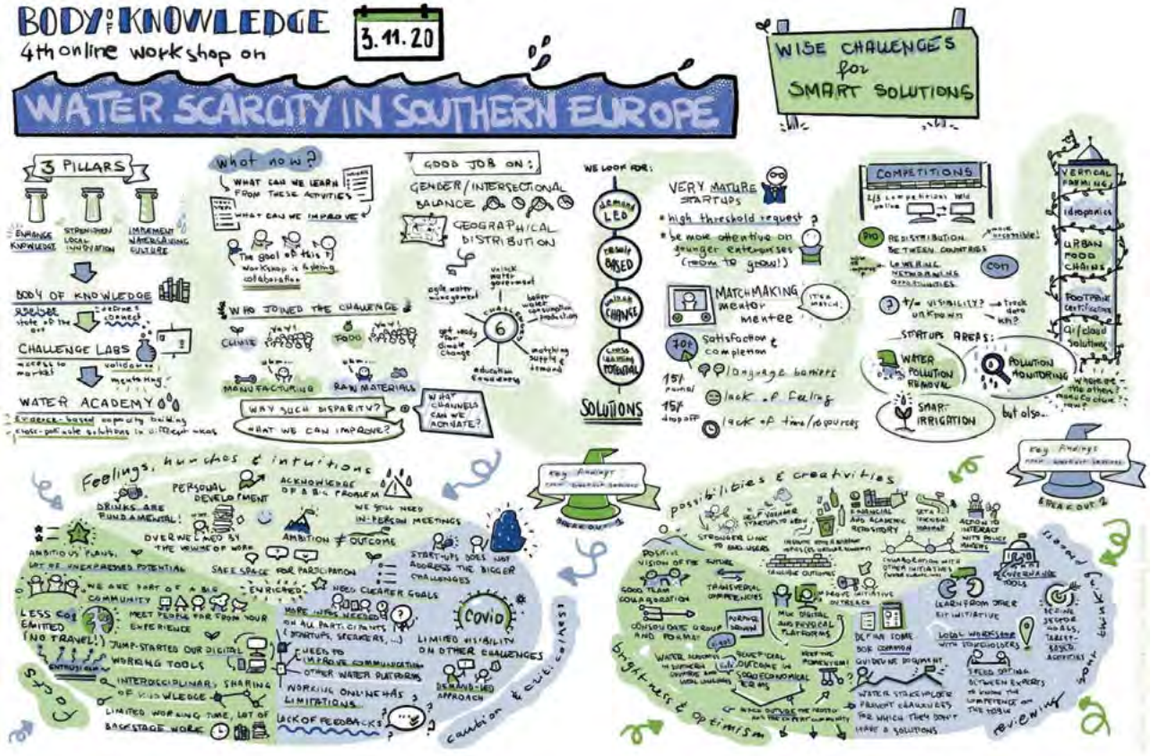
The 2-days online meeting had the aim of providing an overview of ongoing programmes and initiatives, from the Challenge Labs to the EU Green Deal, and giving a space for the experts from the BoK to present their current work and lines of research and enquiry, thereby raising interest for potential collaborations. Experts were asked to reflect and feedback on the role of the EIT KICs going forward, cultivating ideas and proposals to continue discussing.



Sharing Knowledge

Nov 3rd - Dec 11th

Evaluation and Going Forth provided a space for looking back and reflecting on the process generated within the Body of Knowledge and connected Water Scarcity activities in 2020 and to collect recommendations and ideas for going forth into 2021.



The Body of Knowledge worked on the identification of the main issues affecting water scarcity. These **6 challenges** were:

challenges

1

Digitalisation for better water management

2

Unlocking water **governance** and financial schemes for the sustainability of the water scarcity measures

3

Ensuring production control and better water **consumption** to allow legal enforcement

4

Raising **awareness** and promoting education regarding local risks and measures

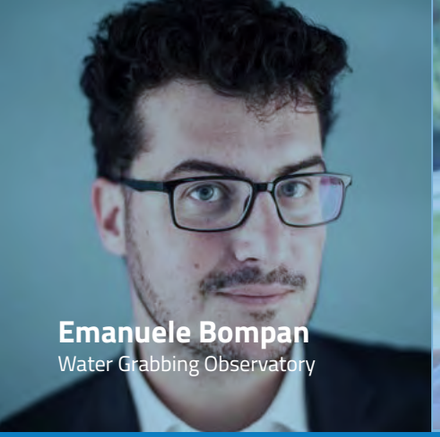
5

Optimizing and matching water supply and demand

6

Fostering **climate** change readiness from the perspective of water

Body of Knowledge
16 International Experts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Water Grabbing Observatory


Marta Carvalho
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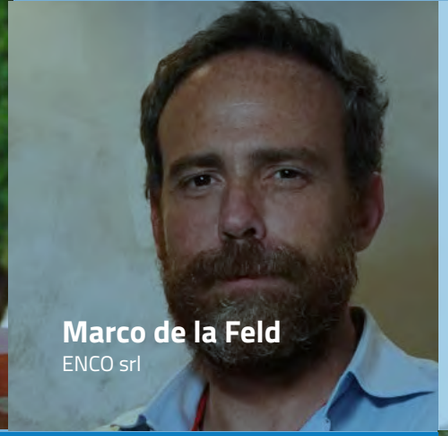
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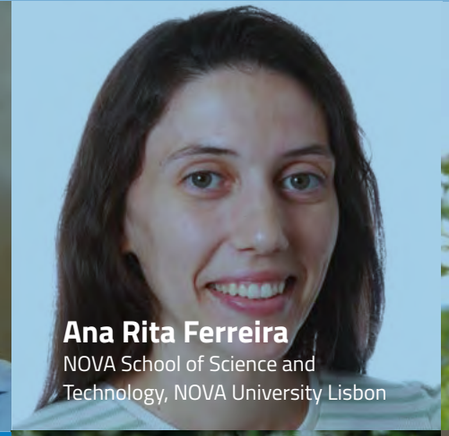
ENCO srl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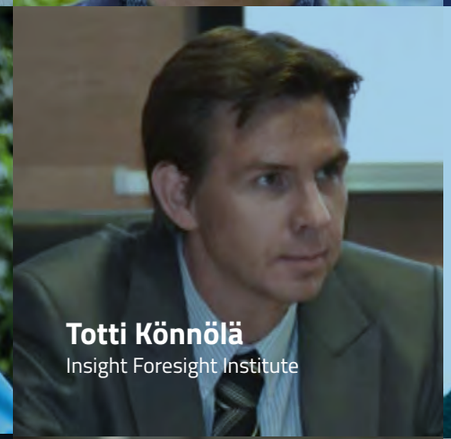
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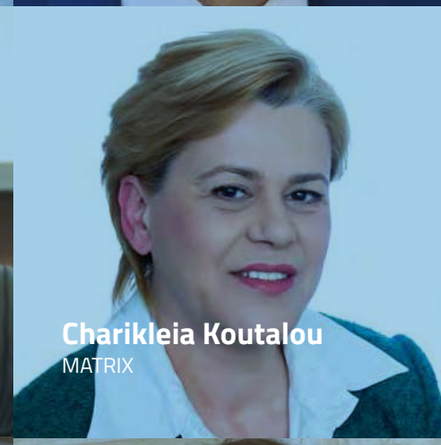
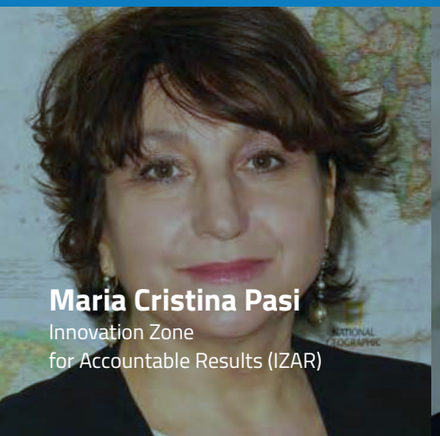

Charikleia Koutalou
MATRIX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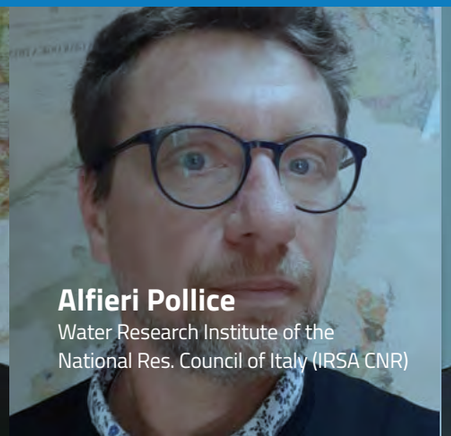
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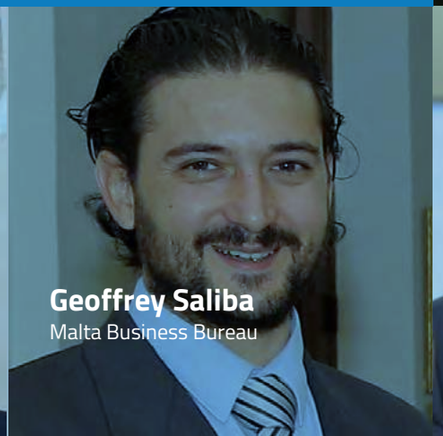
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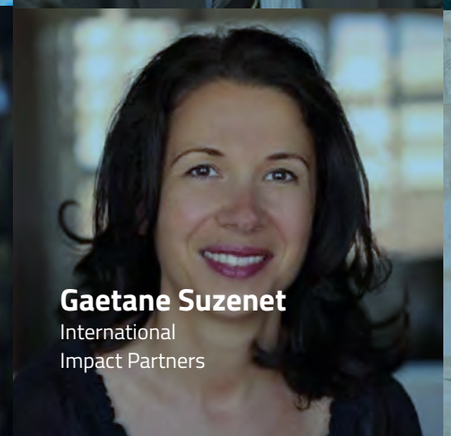
Gaetane Suzenet
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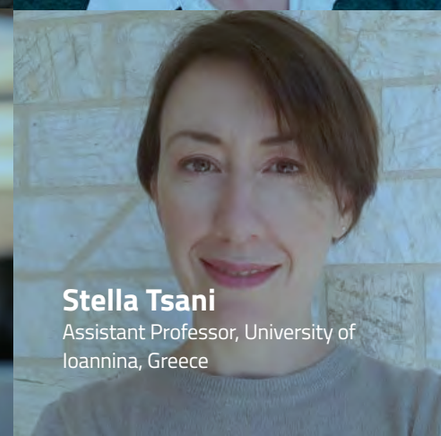
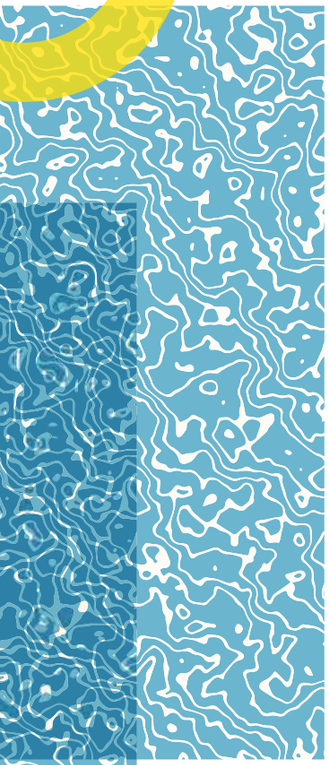

Stella Tsani
Assistant Professor, University of Ioannina, Greece

Nurturing Innovation



Start-ups from all over Europe were supported to provide SMART solutions to water scarcity with a three-step program.

Innovators received training and advice to reach the market with technologies and services that prevent and mitigate water scarcity, to move towards a sustainable water economy (water-efficient and water-saving):

- a tailored mentor
- training on Intellectual Property (IP) management
- trainings on pitching, prior to the competitions
- trainings on Environmental technology verification (ETV) scheme
- InnoWise Challenge Lab (regional) competitions where 7 startups have been awarded with monetary prizes

The impact expected was to solve the identified challenges with concrete and ready-to-use solutions helping consumers and producers to adopt sustainable behaviours.

InnoWise Challenge Labs:

European startups were selected among four thematic categories:

agrifood climate manufacturing raw materials

Innovators entered a 3-step programme designed to develop their business and competitive skills and to bring their solutions to the market:

Training

2 days of advanced training on key issues to deliver a successful business: study cases, fundamental skills as strategic planning, communication and management; finally effective preparation for pitching ideas to potential investors

Mentoring

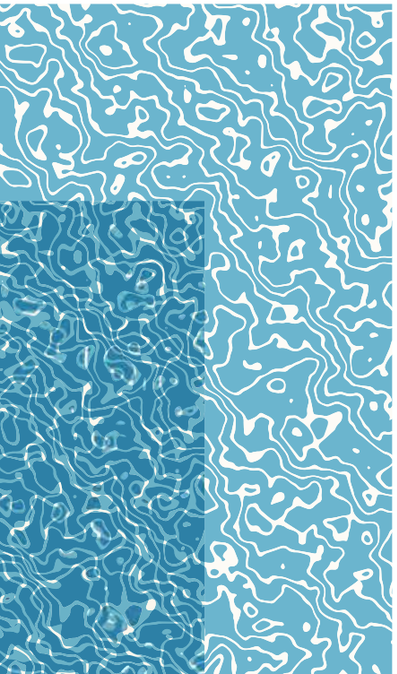
Exceptional mentors with decades of experience in different industries and entrepreneurialism advised each project in the achievement of the identified obstacles powering networking business opportunities

Competition

InnoWise Challenge Labs were virtually held in Italy, Greece and Spain to showcase ideas in front of qualified juries (industry leaders, EIT partners, policy makers, experts), to reward best solutions and to find investors. After a live “pitching competition” winners of each country received EUR 10.000 the first and EUR 5 000 the second for investments in machinery, the production of the prototype, developing consumer tests or the payment of licenses and industrial propriety.

Nurturing Innovation

Start-ups:
26
innovative
ideas



Greece

Airbots Agritech
Holistic Agriculture 4.0 -IoT Drones Sats Rovers AI ML & GIS – low wastage

Develiot
Improving the quality of life by harnessing IoT technology to advance access to clean air and water

Compound Analytics
Water location intelligence through real-time visualization of the water

Matrix Information Technologies Ict
Reliable & quality services for the Agriculture

Scubic - Smart Software Solutions
Optimization system for the smart management of the Water-Energy nexus

Solmeyea
High value food & feed protein production through CO2 utilisation

Urban Food
Carbon Free Water Saving Urban Food Production System

Weas - Aquacorp
Monitors water pollution levels, make adequate water quality management and take care of watery ecosystems´ sustainability

Italy

A+ SMART

Automatic urban greenhouses with aeroponic towers

bluetentacles
USE LESS, GROW MORE

A complete, smart precision irrigation management system

CAPTIVE SYSTEMS

MagnetoSponges: Disruptive technology for wastewater management, treatment & recovery

Magila
Breeding and cultivation system in aquaponics

MYWATER d.o.o.
Clean-tech start-up improving public access to drinking water

MoReSensE
Molecular Recognition and Sensing Enterprise

SpaceCrop
Soil water requirement prediction

Themis WRT
Innovative technologies for circular economy

Spain

BrioAgro Technologies

An intelligent irrigation platform

Detektia
Groundwater monitoring with a single click

Fata Morgana
Facility for desalinating seawater by means of thermal solar energy

FS Group Consulting
Accessible precision technological solution to water scarcity

Graniot
Precision farming with satellite imagery

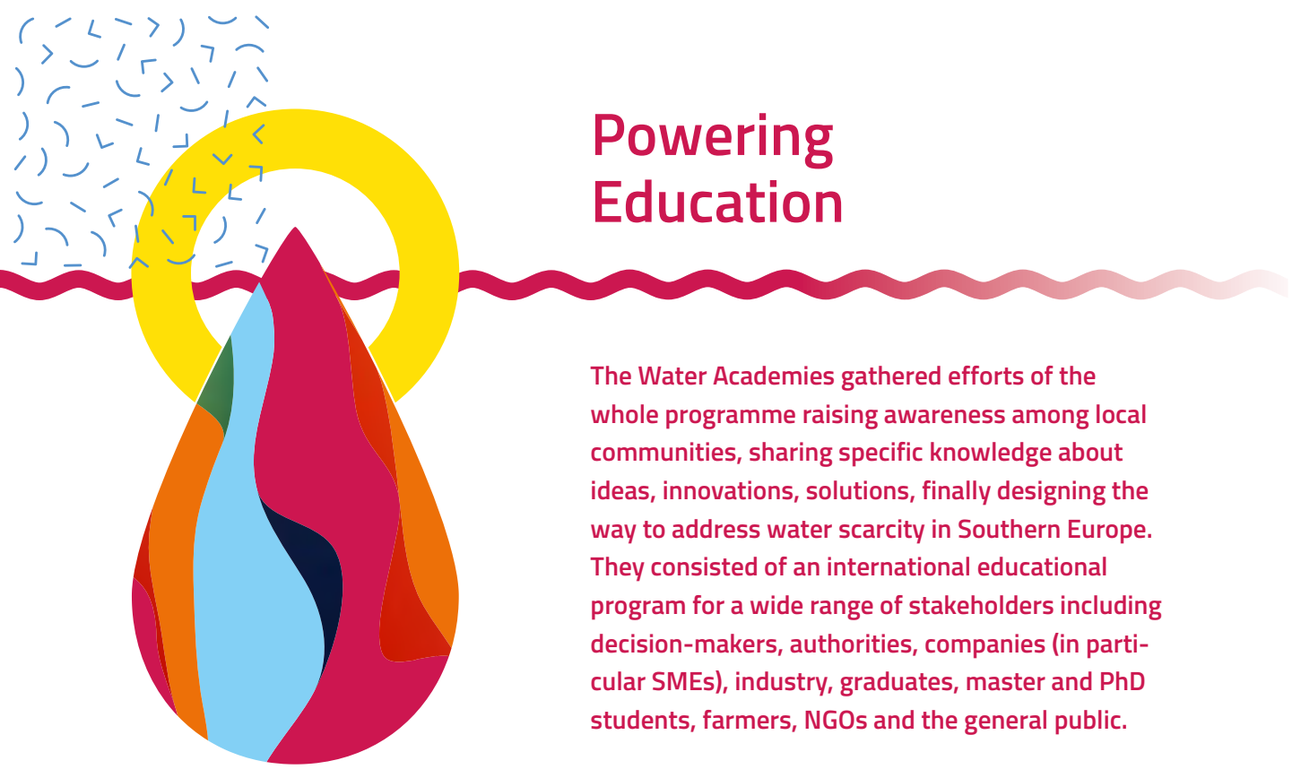
Groots
Sustainable, urban, vertical farming

Métrica6
IoT WAISENSE for water control in intelligent constructions

Savia Atmospheric Fountains and Rivers
Water-from-Air systems based on Ice-Chilled-Waters-Peltier chips

Spherag Teck IoT
Bidirectional AI-powered cloud-based agritech solution

Vestigia Blockchain
Blockchain platform for managing the operation and reputational risk in the supply chain



Powering Education

The Water Academies gathered efforts of the whole programme raising awareness among local communities, sharing specific knowledge about ideas, innovations, solutions, finally designing the way to address water scarcity in Southern Europe. They consisted of an international educational program for a wide range of stakeholders including decision-makers, authorities, companies (in particular SMEs), industry, graduates, master and PhD students, farmers, NGOs and the general public.

The Water Academies were managed online targeting the audiences of Italy, Greece and Spain. The content was based on a needs-assessment of local stakeholders, developed by Knowledge and Innovation Communities together with the group of 16 experts. Industry partners provided real-life business cases.
The Academies were a valuable capacity-building momentum on water scarcity management: local communities went in-depth on global trends in the respective industries; itemized the complexity of the innovation ecosystems and strengthened connections to enhance international cooperative networks.

Delivering innovations to the market: a success story from the Water Scarcity community

Those who are involved in this Programme are building a vivid community of "water savers" that connect people, solutions with real needs and problems across Mediterranean Countries.

Having as mentor Marta Carvalho, one of the Body of Knowledge experts and thanks to her coaching the startup Aquacorp - WEAS won the 1st place award of the InnoWise Challenge Lab in **Greece**.

Aquacorp is a **Spanish** Deep Tech Green start-up and in 2021 will start a pilot project with the aim of validating technology at the Águas de **Portugal**, a publicly-owned group of companies operating water supply and wastewater sanitation systems in Portugal.

"We believe that water monitoring will soon be a strategic instrument to address needs and challenges of climate change."

Pablo Perez
founder of Aquacorp-Weas

Telling new stories

In 2020, the Programme was promoted by an integrated communication strategy running on local and international level that mixed websites and social media, video and visuals, podcast and interviews, events and online forums.

A coherent narrative structure coped with local storytelling maximised the effectiveness of the key message that "we can solve water scarcity by changing the way we use and manage the resource throughout social and smart innovations". Communication activities presented water scarcity as a relevant, immediate and local issue building a connection with audiences and providing actionable solutions to tackle. The facts and science brought by the Body of Knowledge and all the experts contributed to positive and lasting engagement delivering a solid background: communities were reached by local partners that came up with proper channels and languages, making sense of the world through craft messages that touched emotions, values and identities.

Greece

A **podcast series** in Greek with experts from academia and entrepreneurship sector, citizens (residents in islands), artists and activists

local partner STRING THEORY

Italy

2 web talks in Italian:
14th - 21st of December

#H2ORO
Social Media Campaign

local partner ASUD

Spain

Online event
El agua como recurso esencial para la vida
December 16th

local partner FUNDACIÓN GLOBAL NATURE

International partner
Slow Food® Bologna

Web forum during the online Festival **TERRA MADRE** Salone del Gusto:
Water Scarcity in Southern Europe: great solutions for a great challenge
December 16th

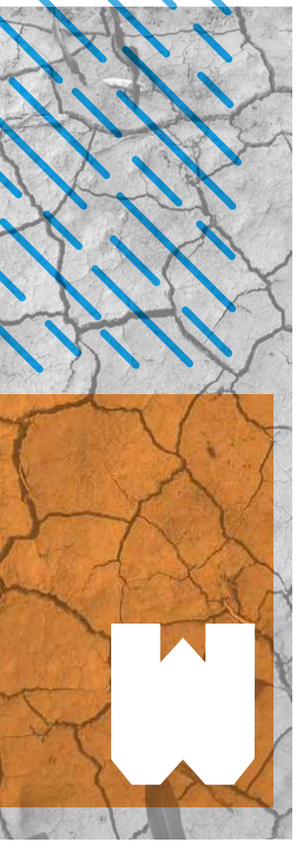
Next steps

If the continuation of the project will be confirmed, it will move forward as a rolling programme with goals in line to the ones set in 2020:

- Contribute to the **economic and social progress in modest and moderated innovation countries** (RIS regions) targeted, as sufficient and good-quality water supply is a prerequisite, by strengthening collaboration between KICs and widen stakeholder's participation from RIS and non-RIS countries, enabling cross-learning and best practices transfer.
- **Strengthen local innovation** in RIS regions by tackling water scarcity as a common threat. Cross-KIC activities will work through different parts of the value chain to find innovative solutions for water scarcity and drought risk prevention, while increasing the innovativeness of targeted RIS regions by exploring the integration / implementation of such solutions on testbeds to ensure long-term sustainability.
- **Consolidate the cross-KIC activity as a relevan initiative in the water arena**, as a unique and multidisciplinary programme. It will increase relevance and visibility of the KICs community and joint work regarding water scarcity as a thematic field from agrifood to manufacturing.
- **Fostering Innovation & Entrepreneurship** in water scarcity challenge: supporting scale-ups; offering solutions to tackle specific water-related issues that KICs partners and other stakeholders face in their daily operations.
- Make **further progress on the challenges identified in 2020**, with a special focus on Water Governance, Financial Schemes and Legal Enforcement as well as promoting engagement and collaboration amongst EIT external stakeholders.
- Fostering the implementation of a water saving culturecin Europe through **raising awareness** for both citizens and business, by active communication and **capacity building**.
- Establish communication mechanisms with other initiatives to **leverage on synergies** and maximize the outreach of the programme.

The Cross-KIC project in 2021 will build on the knowledge, experiences and results achieved so far in 2020 to further tackle these challenges through knowledge exchange, entrepreneurship, capacitation, and awareness.

Based on the six main challenges to tackle water scarcity identified in 2020 the programme in 2021 will involve a new KIC, EIT Digital; the experts' group will actively participate in the **creation of scientific and technical papers**, with a special focus on Water Governance, Financial Schemes and Legal Enforcement; and the InnoWise programme will be reshaped to support the scale-up of start-ups, giving them guidance to access support mechanisms for their growing or expansion phase.



Impacts

In the long term, this project will contribute the creation of a **water saving economy** across Southern Europe, where water scarcity is of major concern

40%

Savings of up to 40% in the agricultural and industrial sectors, by supporting and promoting smart solutions

50%

Savings of up to 50% in cities by monitoring and repairing leaks in public supply networks

19%

Reduction of about 19% of the public water consumption by extending the Eco-design Directive to domestic water-saving devices

Finding innovative solutions for water scarcity in Southern Europe is the fundamental programme of **European Institute of Innovation and Technology (EIT) Regional Innovation Scheme (RIS)** that is supporting communities and solutions to embrace a sustainable water economy

The **European Institute of Innovation and Technology (EIT)** is an independent EU body, created by the European Union in 2008 as an integral part of Horizon 2020, the EU's Framework Programme for Research and Innovation. The aim is to increase Europe's ability to innovate by nurturing entrepreneurial talent and supporting new ideas. The EIT brings together leading organisations from business, education and research among Knowledge Innovation Communities (KIC) to: develop innovative products and services; start new companies; train a new generation of entrepreneurs.

The **EIT Regional Innovation Scheme (RIS)** is designed for EU Member States and Horizon 2020 Associated Countries in Europe who are modest and moderate innovators, and where Innovation Communities have few or no partners. Strategically, the Scheme is an additional offer to these countries to facilitate their engagement with the EIT Knowledge Innovation Communities. Each KIC cooperates with local innovators: individuals such as students, researchers, entrepreneurs; organisations such as SMEs, universities, research labs, regions, NGOs and cities.

www.eitfood.eu/projects/ris-finding-innovative-solutions-for-water-scarcity-in-southern-europe-2020

This project is supported by the EIT a body of the European Union

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In addition, for their work and contribution to this programme the leading team would like to thank:

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- Miriam Sastre - EIT Food
- Annalisa Spalazzi - EIT Climate-KIC
- Eric Hoa - EIT Climate-KIC
- Chiara Soletti - EIT Climate-KIC
- Ana-Karol Arizala - EIT Manufacturing
- Ignacio Calleja - EIT Raw Materials
- Phoebe Kountouri - ATHENA Research Centre
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- Anna Violato, Jacopo Pasotti and all the team of Water Grabbing Observatory
- Alfieri Pollice - Water expert
- Ana Rita Ferreira - Water expert
- Charikleia Koutalou - Water expert
- Diego Intrignolo - Water expert
- Emanuele Bompan - Water expert
- Felix Gonzalez Yague - Water expert
- Gaetane Suzenet - Water expert
- Geoffrey Saliba - Water expert
- Guido Schmidt - Water expert
- Marco de la Feld - Water expert
- Maria Cristina Pasi - Water expert
- Marta Carvalho - Water expert
- Paulina Janiak - Water expert
- Raffaele Giaffreda - Water expert
- Stella Tsani - Water expert
- Totti Konnola - Water expert

Nearly 80% of the world's population is exposed to high levels of threat to water security due to anthropogenic climate change.

Considerable changes in freshwater resources have been occurring across the globe, indicating a future in which already limited water resources will become even more precious. The dramatically increased water demands resulting from increasingly uncertain climate conditions and growing population indicate the need for a holistic, intelligent decision-making framework that embraces cutting edge technological advancements, for managing water that is human-centric, socially equitable, economically efficient, and environmentally resilient, as advocated by the UN Agenda 2030, Sustainable Development Goals, SDGs (UN, 2015). The cross-KIC initiative - which brings together EIT Climate-KIC, EIT Food, EIT Manufacturing, and EIT Raw Materials - focuses on accelerating innovation commercialization of technological solutions for challenges faced at the intersection of water, climate, agriculture, and energy, to address the water scarcity problem.

Innovative! Effective! Timely!

Prof. Phoebe Koundouri, Athens University of Economics and Business President-elect, European Association of Environmental and Resource Economists Fellow, World Academy of Art and Science Director, EIT Climate KIC Hub Greece Co-Chair UN SDSN Europe