

Webinar:

Climate change adaptation on European islands

Organices

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HYDROUSA project:

Demonstration of water loops with innovative regenerative business models for the Mediterranean region



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Basic Project Info



- **Title:** Demonstration of water loops with innovative, regenerative business models for the Mediterranean region
- **Acronym:** HYDROUSA
- **CIRC-02-2016-2017:** Water in the context of the circular economy, Innovation Action
- **Total budget:** €12,015,448.75; EC contribution: €9,958,706.88
- **Duration:** 54 months
- **Start date:** 01/07/2018
- **Number of partners:** 28

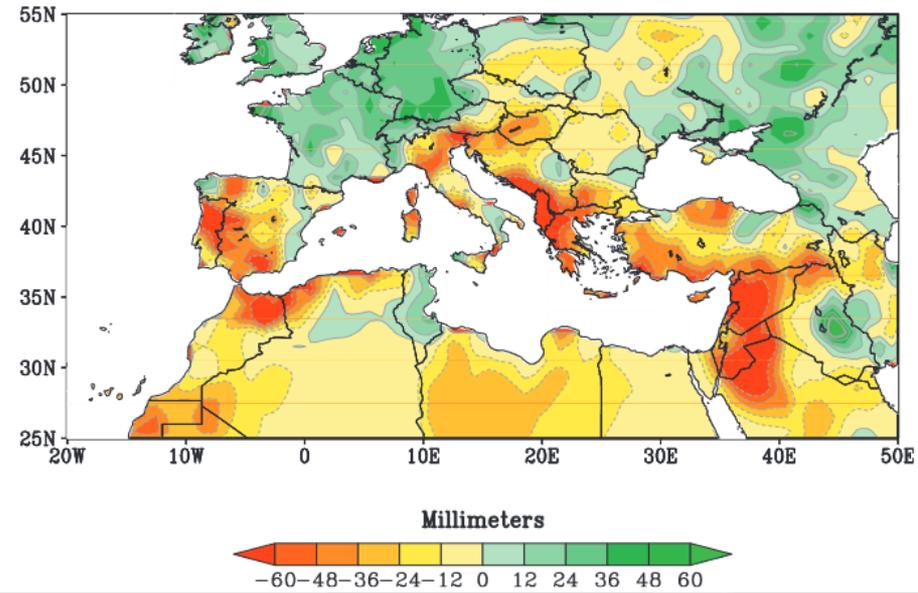
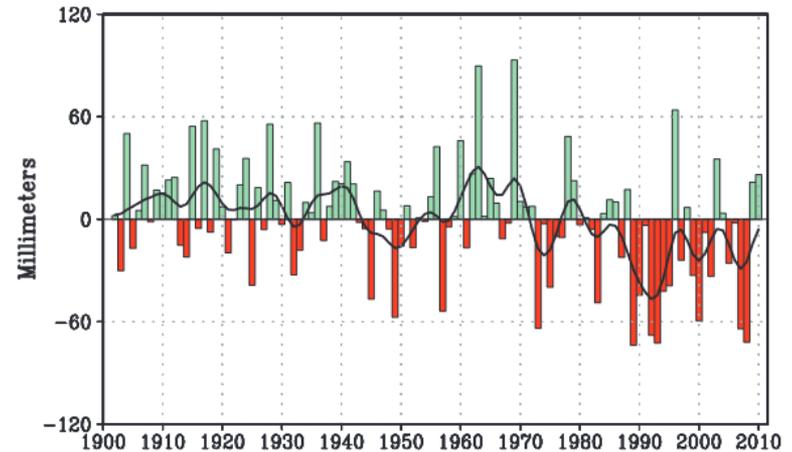
HYDROUSA is materialised through:

- ✓ 13 innovations
- ✓ 6 demo sites (HYDRO 1-6)
- ✓ In 3 Greek islands



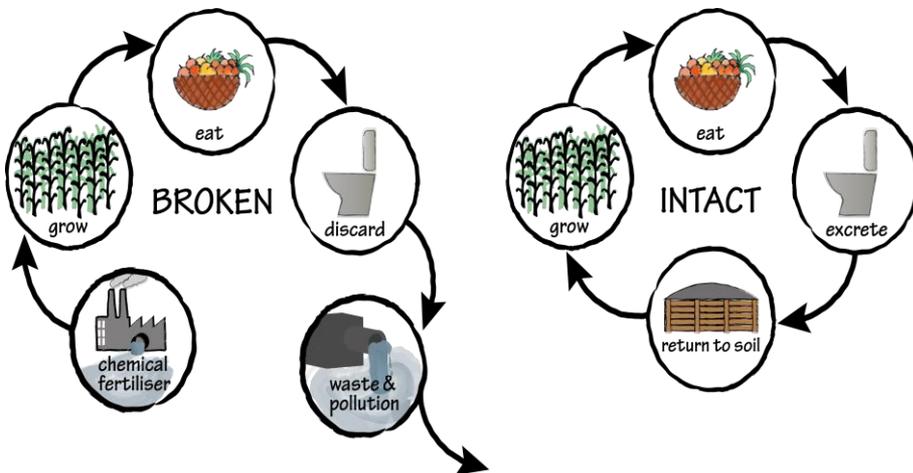
Water – climate MED

- MED is warming 20% faster than the global average. (*MedCC*)
- 180 million people in the southern and eastern Mediterranean suffer from **water scarcity** (<1,000 m³/capita/yr) and 80 million people from extreme water shortage (<500 m³/capita/yr) (*Ferragina 2010*).
- Summer precipitation rates in MED are expected to decrease by 24-46% by the end of the century.
- **Agriculture** is the prime consumer of water in the MED accounting for **>72% of total consumption**.
- **High touristic activity**



Water - climate

'Water plays a pivotal role in how the world **mitigates and adapts** to the effects of climate change. An integrated view on water, the biosphere and environmental flows is required to devise **sustainable agricultural** and economic systems that will allow us to **decelerate climate change, protect us from extremes and to adapt to the unavoidable at the same time.**'



Water scarcity	Valorisation of non-conventional water sources
Extreme water events	Infrastructure/nature based solutions
Deforestation	Agriculture enhancement
Health- food security and safety	Monitoring quality Short supply chain



HYDROUSA – Key Contributor to EU Climate Adaptation Strategy



The new EU Strategy on Adaptation to Climate Change “Facing a climate-resilient Europe” sets the scene for more ambitious. The objective of the strategy is to progress swiftly to by making adaptation action smarter, more systemic, of the European Green Deal and complements the Climate Pact, but also other initiatives such as Renovation Wave, the Farm to Fork Strategy, the up Renewed Sustainable Finance Strategy.

The role of Research and Innovation

Responding to the challenges posed by the climate emergency requires scientific breakthrough innovations in various domains ranging from digital tools to water treatment. The objective of the strategy is to progress swiftly to by making adaptation action smarter, more systemic, of the European Green Deal and complements the Climate Pact, but also other initiatives such as Renovation Wave, the Farm to Fork Strategy, the up Renewed Sustainable Finance Strategy.

EU Framework Programmes for Research and Innovation

The EU Research and Innovation Programmes – FP7 and Horizon 2020 – have focused on the development of effective solutions in areas such as high-end climate change adaptation, disaster risk reduction, nature-based solutions, climate services and forestry. The results from these programmes have significantly contributed to the development of the new EU Climate Adaptation Strategy.

Horizon Europe will be vital to achieving the objectives of the new EU Climate Adaptation Strategy by strengthening the scientific understanding of climate change and its impacts, building stakeholder trust and, crucially, engaging citizens to trigger transformational change. More research funding investigator-driven, bottom-up research through the European Research Council.



“2021 is the year of Climate Adaptation. It started with the first global Climate Adaptation Summit and it will culminate in the COP26 in Glasgow, in November. The new European Climate Adaptation strategy could not be timelier. Research & innovation have a pivotal role in addressing the multifaceted challenges of today’s climate emergency, including accelerating behavioural change. Together, we will build a climate-resilient Europe.”

Mariya Gabriel, EU Commissioner for Innovation, Research, Culture, Education and Youth

Research and Innovation

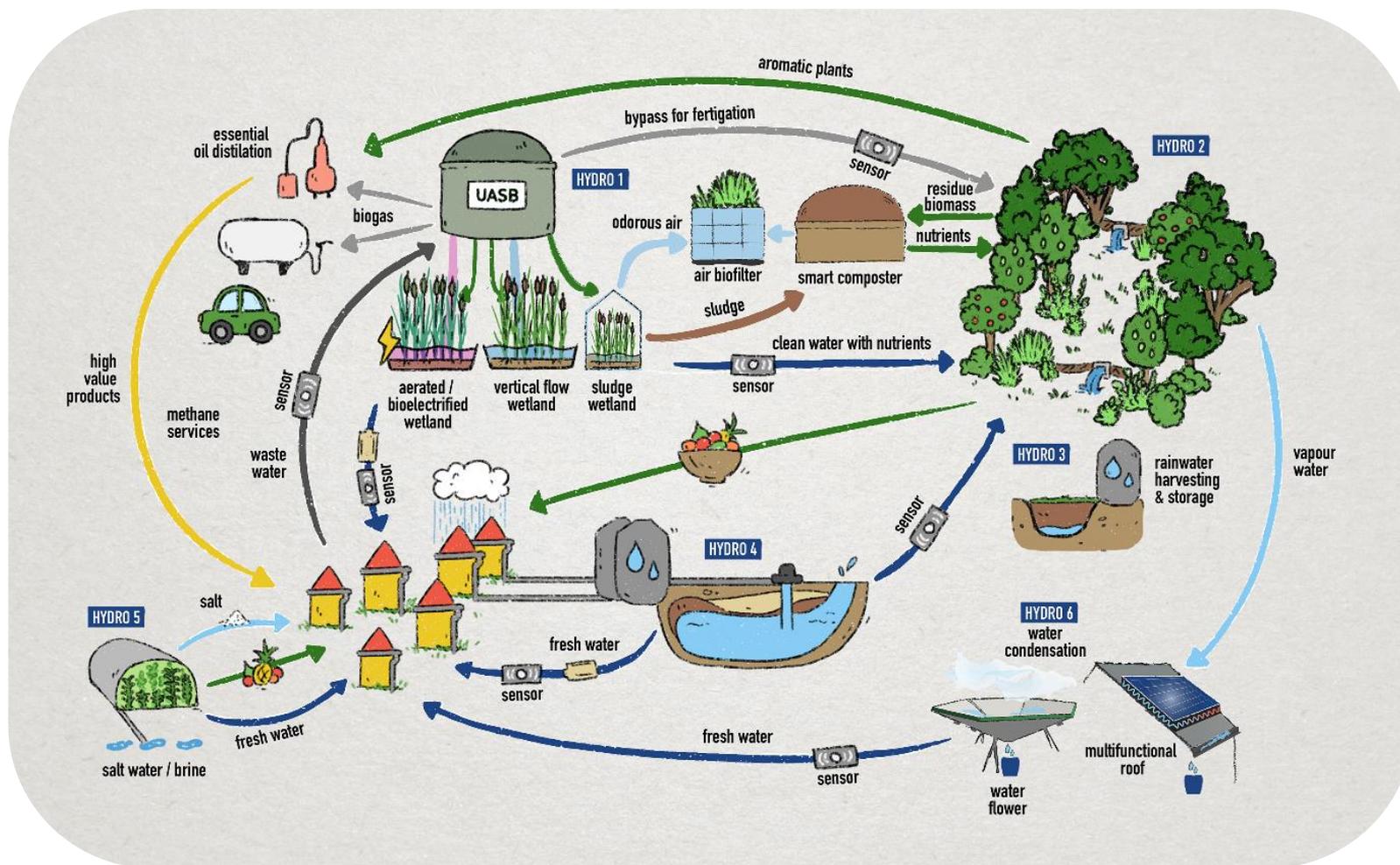


HYDROUSA developed a new circular business model, mostly suitable for Mediterranean and other water-scarce regions in Europe and worldwide. This will implement innovative nature-based and nature-inspired climate adaptation solutions for decentralised water scarce areas in terms of water/wastewater treatment and management, which will close the water loops and will also boost their agricultural and energy profile.

HYDROUSA - Regenerative Water Based Solutions

<https://www.youtube.com/watch?v=yDXS7X7Z-Po>

Results





HYDRO1 – Lesvos island Decentralized Wastewater Management



UASB reactors and biogas collection system



Constructed wetlands (CWs) and pilot electroactive CWs

HYDRO3 – Mykonos Island

Remote rainwater harvesting system



HYDRO 3



HYDRO4 – Mykonos Island

Residential rainwater harvesting system

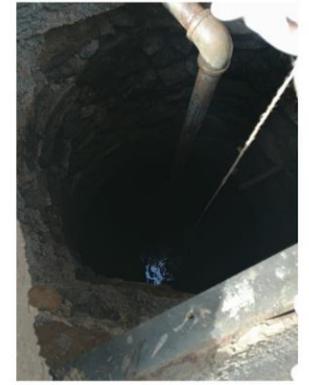
Rooftops



sensor installation & sampling



Bioswale system





HYDRO5 – Tinos Island Seawater Desalination



Mangrove still system



Greenhouse



SEG



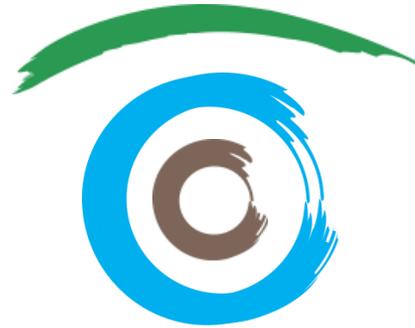


HYDRO6 – Tinos Island Eco-tourist facility



-  Water scarcity by valorizing non-conventional water sources
-  Protection against floods through bioswales
-  Addressing Desertification by restoring barren land
-  Promoting biodiversity through multi-cropping practices (agroforestry, permaculture) and the implementation of nature-based solutions
-  Social perception for water scarcity issues





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