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Higher Education
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Innovation Forum of project WaterReTUNE

**Tuesday, 21 March 2023,
ElMouradi AFRICA hotel**





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Sidi Amor Water Living Lab

Taieb Ben Miled & Karim Rgaieg & Haidar Ben Hassen & Hedi Segond & Sofiene Akkari





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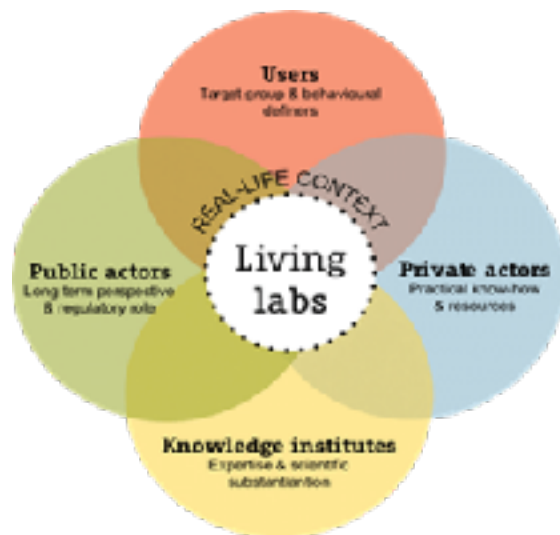
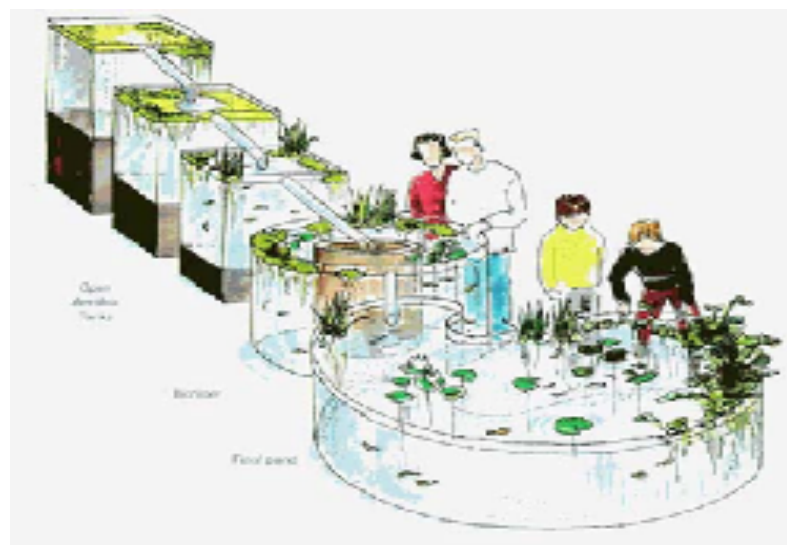
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Sidi Amor Units and Gardens
become living labs for scientists,
watershed groups and farmers

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TRESOR



Training Workshop

Water and Good Governance Using Constructed Wetlands
and Drying Beds

26th March - 1st April 2015, Tunis, Tunisia

Usage of constructed wetland at NGO Sidi Amor
Lessons learned from a tunisian case study
Teleb Ben Miled, GDA Sidi Amor – Ariana -Tunis



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Empowering Farmers in setting up Innovative Strategies for Water related Agroecosystem services

Italy Farm Lab

Subcatchment: Tuscany Coastal area
Local Partner: Scuola Superiore S. Anna



WEF Nexus challenge

Agricultural areas are using large amount of water causing groundwater exploitation and externalities such as salinization, subsidence, disappearing of groundwater-related ecosystems

Existing Technologies

- Managed aquifer recharge. A fully equipped MAK scheme using rainwater harvesting concept valuable up to 1.3 M m3

Stakeholders

Land and Irrigation Management authorities, River Basin Authority, farmers organisations

Spain Farm Lab

Subcatchment: Rio Daja (Daero)
Local Partner: Universidad Politecnica de Madrid



WEF Nexus challenge

The extensive cultivation devoted to grapes cereals and other annual crops put pressure on both water and energy resources; the efficient use of the energy in irrigation networks will be addressed and the optimal water resources management as well.

Existing Technologies

- Direct solar pumping for water well extraction and for pressurized plot irrigation equipped with drip irrigation system

Stakeholders

Irrigation district authorities, River Basin Authority, farmers organisations, local communities

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Tunisia Farm Lab

Subcatchment: Gouvernorat de l'Ariana
Local Partner: GDA Sidi Amor



WEF Nexus challenge

The irrigation area of Boj Toail is characterized by olives and flower production. The increasing water demand is putting pressure on local water resources that are limiting the development of this important economic sectors

Existing Technologies

- Drilling with photovoltaic panels
- Constructed wetland system for wastewater treatment

Stakeholders

Agriculture Ministry; Environment Ministry; UTAP (National Farmer's Organisation) Municipality (Raoued)

Turkey Farm Lab

Subcatchment: Antalya basin
Local Partner: SUEN
Turkish Water Institute



WEF Nexus challenge

Antalya Basin is under water stress due to both agricultural activities and mass tourism. Current agriculture practices (mainly greenhouses but also open field cultivation) show criticalities regarding optimum water/nutrients use and minimization of runoff, so that quality/quantity of water bodies can be sustained in the basin

Existing Technologies

Traditional irrigation systems

Stakeholders

State Hydraulic Works (DSI), farmers and local communities

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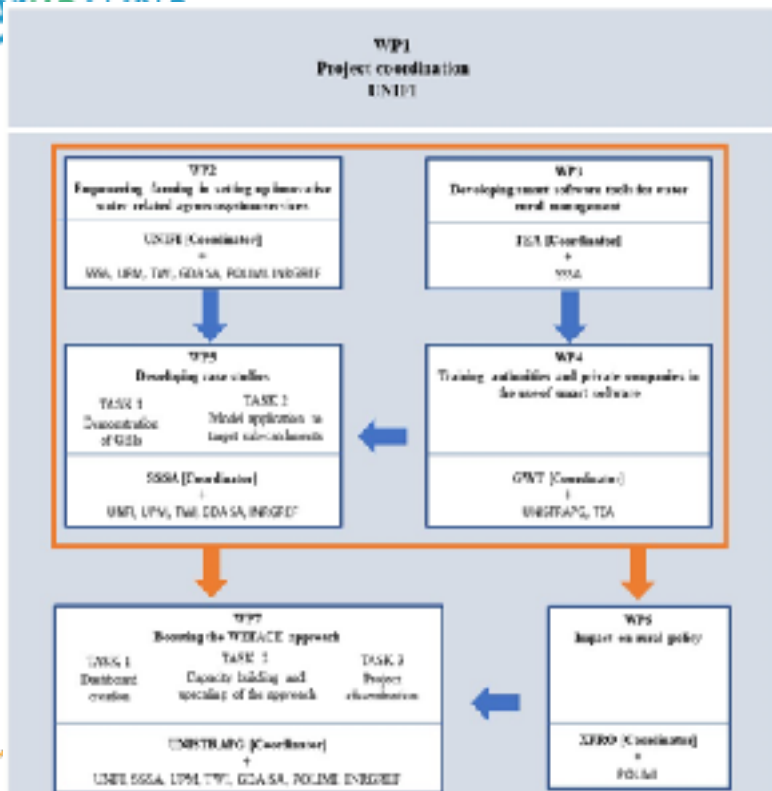
Water **DE** TIME



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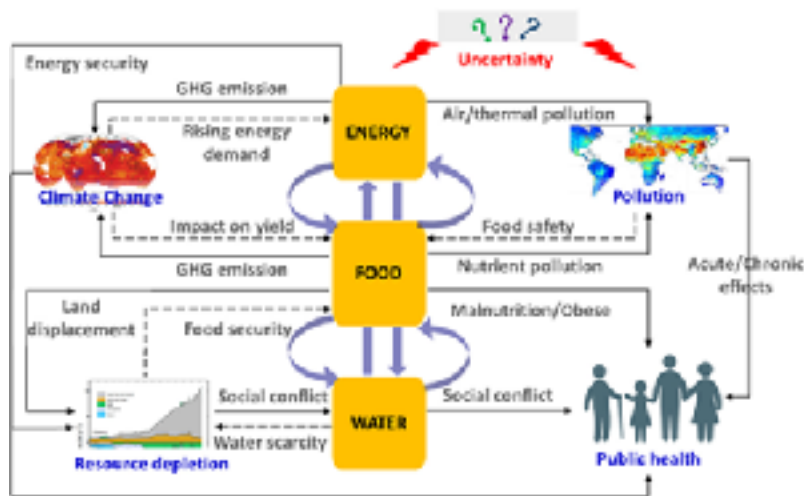


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The Water Pathway

Existing water systems are often inefficient - from water loss in reservoirs, leaky distribution, water lost, collected, treated and released. Such systems will continue to exacerbate the problem (see below): provide a better quality and services. The entire system should be redesigned as a closed loop system, with excellent water quality options (treatment and differentiated by use). Focus on the use distributed (reuse) systems, efficient (reuse) systems, not general water. The first line of defense (water scarcity) should be a comprehensive demand management strategy that promotes sustainable (reuse) and reuse (reuse) (reuse) in services.

CIRCULAR ECONOMY & WASTE WATER IN SIDI AMOR AREA



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The Water Pathway

Facility water systems are often inefficient - from water loss in reservoirs, leak to out-leaked water to lost, collected, treated and released. Such systems will continue to exacerbate the problem (see below): provide 1 adaptive equity and justice. The entire system should be redesigned as a closed loop system, with cascading water quality options determined and differentiated by use. Critical to this are distributed treatment options, efficient water-use systems, not regional units. The first line of defense against water scarcity should be a comprehensive demand management strategy that promotes sustainable lifestyles and ensures equitable access to services.

CIRCULAR ECONOMY & WASTE WATER IN SIDI AMOR AREA

Sidi Amor Units and Gardens become living labs for scientists, watershed groups and farmers

Sidi Amor Living Lab is first to pilot concept that will now be used across Tunisia



- Water use in industry
- Water use in agriculture
- Water use in domestic
- Water use in services
- Water use in recreation
- Water use in power
- Water use in transport
- Water use in energy
- Water use in health
- Water use in education
- Water use in culture
- Water use in tourism
- Water use in sports
- Water use in leisure
- Water use in entertainment
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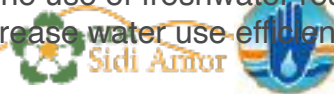
How can the Living Labs develop sustainable and efficient solutions for water use?

Climate change and economic or population growth – those factors create challenges to the water sector in coastal areas and beyond. Water scarcity and increasing water demand result in the overexploitation of resources, quality deterioration and regional imbalances in the availability of water resources.

To tackle these challenges, the European research project ‘building a water-smart society and economy’, short [B-WaterSmart](#), develops and demonstrates smart technologies and circular economy approaches for the water sector. The research in the project is based on the work of six demonstration sites, called Living Labs, all across Europe. Together with research partners and local technology providers they develop and test water-smart management solutions and technologies

In order to implement those solutions strongly in the practice of the water sector, technical and digital solutions, as well as new business models, are jointly developed by all project partners. The overall aim is to accelerate the transformation to water-smart economies and societies in coastal Europe and beyond by reducing the use of freshwater resources, improving the recovery and reuse of resources, and increase water use efficiency.

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Prof. Dr. Martin G. Grambow
Honorar professor der TUM seit 2012 / Fakultät
Ingenieur fakultät Bau Geo Umwelt /
Fachgebiet International Water Management



Exploratory Mission of Bavarian « Forest-Water-Well being in Tunisia » with Munich University team. **Prof. Dr Jörg E. Drewes** Chair Professor
Chair of Urban Water Systems Engineering, Technische Universität





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