

Challenges for the Sustainable Water Management in techno-environmentally heterogenous regions: the case of Trikala region - Greece

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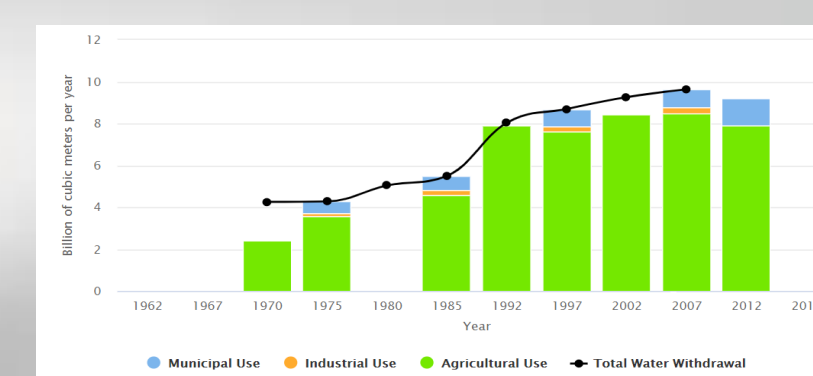
Context

Multiple pressures on the water supply in the region of Thessaly

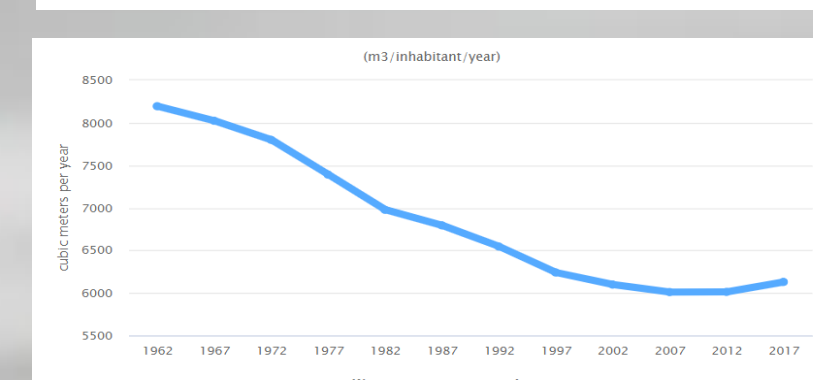
Mediterranean pattern: water scarcity

- increased consumption of groundwater
- slow renew of groundwater and surface water

Agriculture responsible for the biggest water withdrawal in Greece



Dramatic decrease of renewable water resources in the recent years



- How to better manage water resources for the benefit of both farming purposes and the everyday needs of citizens?
- How to ensure availability and quality of water?
- How to organize non-urban water use management in a way that builds on the region's 'Smart' developments towards the transition to a digital future?

Conditions affecting access to digitalisation

- Transparent and forward-thinking implementation of new technologies
- Linking of Trikala's future digital urban projects with Sustainable Development targets
- Systemic integration of agricultural related facilities and services to Trikala's 'smart' city orientation
- Challenges in design and implementation of horizontal measures due to the intense fragmentation on water management administration among regional public water management agencies
- Long term fiscal and political crisis putting efficiency and sufficiency of provisions into risk
- Low level of digital skills of local society and public officials

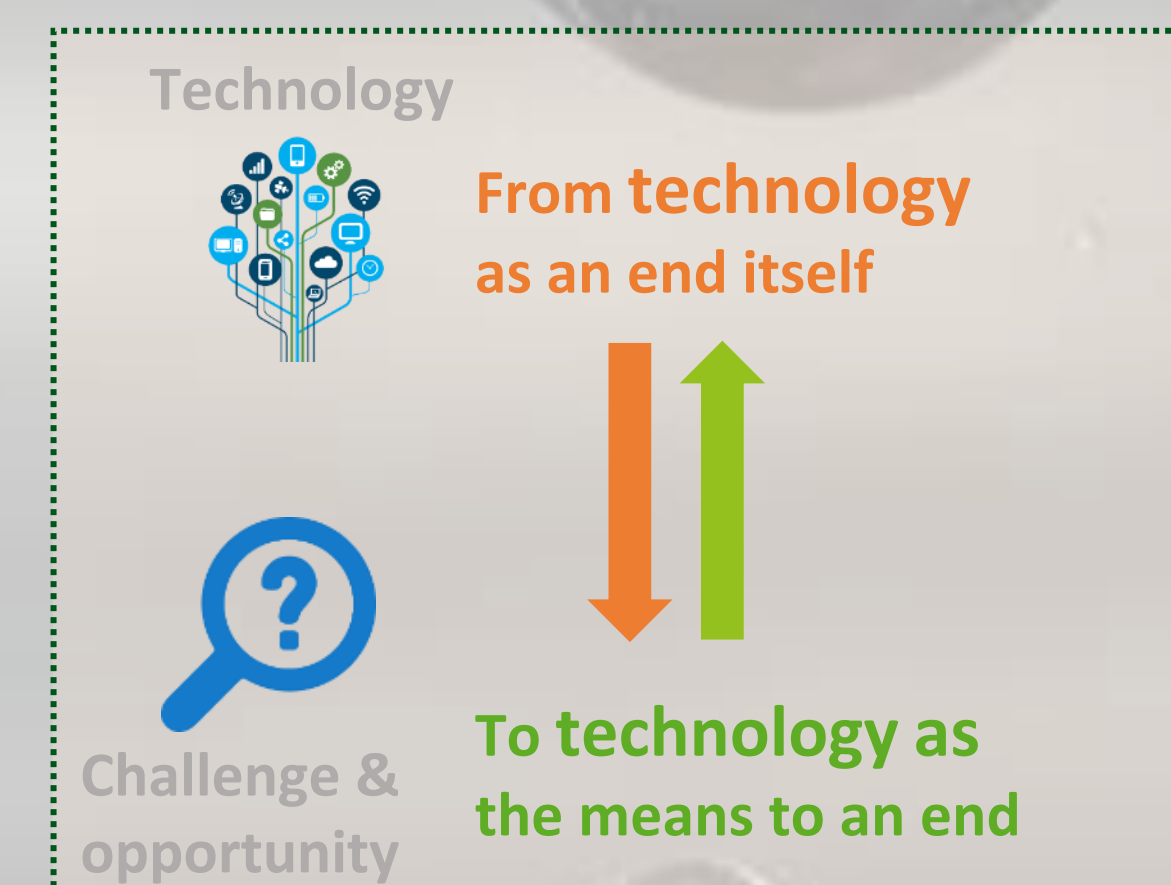
Approach & Methodology

What

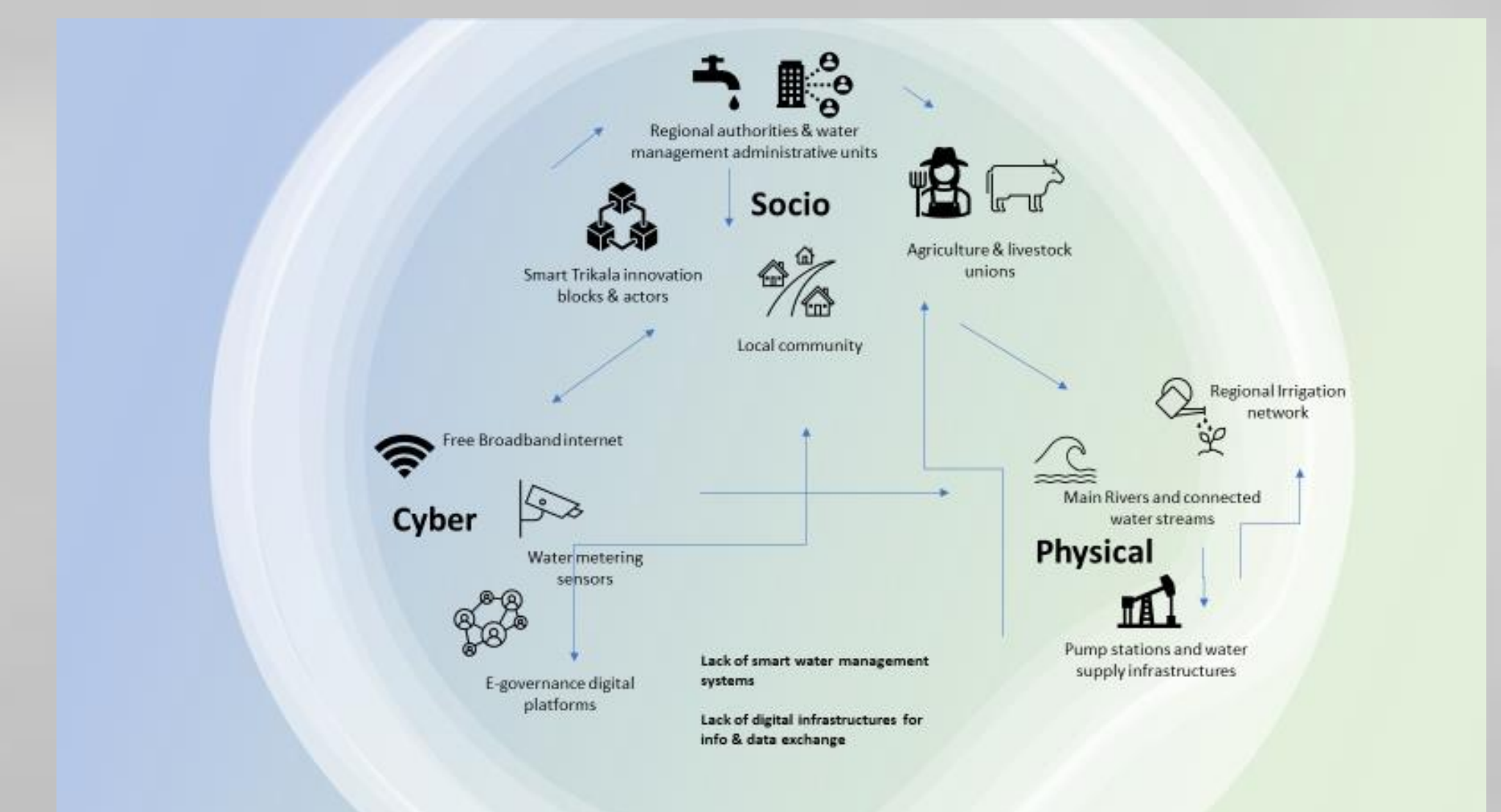
- Modelling of the Socio-Cyber-Physical system
- Co-creation of future scenarios
- Identification of Drivers & Barriers
- Impact Assessment & Refinement
- Establishment & operation of a Living Lab (LL)

How

- Participatory research and development, involving relevant stakeholders
- Implement education & training activities
- Pathways & scenario development
- Study of the dynamics of the SCP (winners, losers, opponents) and their consideration in the methodological approach
- Application of co-creation methods in all phases of the LL



Socio-cyber-physical system



- Strong economic dependency from natural resources
- Civil Society water consumption habits
- Animal husbandry & farming activity water dependencies
- Limited collaboration among water management administrative units
- 'Smart-Trikala' project: the region has strong tendency to adopt and apply innovative ICT solutions

Issues identified by the Living Lab participants

- Lack of social awareness regarding equality of water usage and poor irrigation practices
- Lack of an up-to-date legal framework for the management / jurisdiction of water resources
- Lack of irrigation regulations and insufficient regional supervision
- Under manning of competent services leading to inability to conduct timely audits
- Uncontrollable rejection of pesticide packaging with implications in water quality. Lack of a national action plan for the collection of pesticide packaging
- Water loss during distributions due to outdated pumping stations technologies and basement and aboveground water supply network

Importance of data

- Existing data are under-used or not used at all
- Need to obtain reliable and continuous data on:
 - rate and quantity of water supply in the catchment areas
 - percentage of water flowing into the underground aquifer
 - periodicity of water use according to the needs of the agricultural food sector in the region
 - quantity and storage capacity of the water for future use

Suggestions

- Reduce the fragmentation of roles and responsibilities in monitoring and management of water supplies
- Need for a revised regional/national regulatory framework
- Increase the collaboration between the regional water management authorities
- Increase the level of public awareness on sustainable water management practices
- Emphasize on the adoption of digital tools to increase success of administrative coordination

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