DESIRA POLICY BRIEF

Sustainable Water Management Practices

The Sustainable Water Management Living Lab (LL) operates in the region of Trikala in central Greece. So far, water scarcity has not been an issue for the majority of the rural areas of the prefecture. The amplitude of the region's water resources is sufficient for covering the agricultural and everyday needs of citizens. However, local authority representatives have realised that the current water management practices are sub-optimal and inadequate to ensure a mid-long term sustainable use of water resources for the region. Within the scope of this Living Lab, two future scenarios (one plausible positive and one plausible negative) were created based on a hypothetical scenario question related to the foreseeable future impact of digital tools in Trikala's water management routines. The two future scenarios created by the Living Lab's stakeholders during workshops have helped to identify various areas where future policies are needed. Deploying policies that will focus on alleviating the regions digital skill gap, promoting circular economy, 'localising' national and European policies and providing incentives to the local SME's are key factors when trying to implement sustainable management practices that rely on public participation, usage and adoption of digital solutions.

CONTEXT

Greece has realised the necessity of its transition to the digital economy and society. The digital transformation is an immediate need and priority in Greece.

In this context, a national strategy was developed for digital transformation aiming to align with landmark digital European policies and set specific targets that will benefit the Greek society and economy. Greece faces long-lasting structural deficiencies as well as social and demographic peculiarities that impede the fast-paced implementation of digital transformation policies and initiatives, facts that are also reflected in the country's significantly low rankings among the EU member states based on the Digital Economy and Society Index (DESI) and the Network Readiness Index (NRI). When it comes to rural and agricultural levels of digitalisation, Greece is making efforts to close the gap with the rest of the European states by implementing national scale horizontal measures. However, further focus should be directed towards individual challenges that the rural regions face, where mechanisms enabling the exploitation and channelling of the local experience and tacit knowledge into the policy making process are still missing.

This policy brief is based on the Sustainable Water Management Living Lab (LL) that focuses on water management practices for the region of Trikala. The amplitude of water resources in the region is sufficient to cover the agricultural and everyday needs of citizens. However, local authority representatives have realised that the current water management practices are inadequate to ensure a mid-long term sustainable use of water resources for the region. The most pressing issues identified inside the scope of this Living Lab are the high fragmentation of roles responsibilities among various water management and public agencies and the lack of an integrated regional plan when it comes to water management (also hindered from a lacklustre regional/national water regulatory framework). Moreover, it was observed a low level of public awareness when it comes to sustainable water management practices. The LL activities have contributed in steering local stakeholders and public administration in prioritising future activities for the adoption of digital tools and strengthening the administrative coordination as well as raising public awareness when it comes to sustainable water management practices.

RESEARCH APPROACH

As a starting point the scenario development activities of this Living Lab (LL) used the following focal question '**How can digital tools impact the management of water resources in relation to Trikala's farming rural & city needs in the next decade?**''. This scenario question was adopted with the aim to create a future vision and was presented to the Living Lab's stakeholders as a baseline for the development of the possible future scenarios. Through a process of assessing the past needs, expectations, and impacts (NEI), the LL participants have contributed to the development of the two future scenarios.

A follow-up to the NEI activities was the definition of an initial set of LL Drivers of Change (DOCs). The validation and refinement of the DOCs took place in a workshop with the contribution of key LL stakeholders. The refined DOCs served as the basis on which the workshop's participants formulated positive and negative future visions of the region. The plausible positive, business as usual, plausible negative expressions of these drivers constituted the range of future pathways that the future scenarios could follow.

CREATING SCENARIOS TAKES THE FORM OF AN IMAGINATIVE ASSESSMENT CARRIED OUT INTO A POSSIBLE FUTURE WHERE DIGITAL IMPACTS HAVE RESHAPED THE SOCIAL, PHYSICAL, AND TECHNOLOGICAL ENTITY INTERACTIONS FROM THE LOCAL STAKEHOLDER'S PERSPECTIVE.

SCENARIOS DEVELOPED

One of the main goals of the Living Lab was the creation of two complete future pathways using as a point of reference the past (NEI) LL activities that contributed to sketching the wider LL socio-cyber-physical context as well as the current needs and future expectations. The output obtained was a positive and a negative pathway that were used as the better (positive) and worse (negative) case scenarios and served as a baseline where the LL's Socio-Cyber-Physical system strengths and deficiencies as well as threats and opportunities are projected.

The positive pathway revolves around a future where a family takes the decision to relocate from Athens in the Trikala region, planning to utilise the land in their possession and get involved in the agricultural business. The irrigation of their land is a major concern both in terms of quantity of water, but also of the related costs. Their introduction into the Trikala's rural environment and the initiation of their agricultural activities are facilitated by the digital developments being introduced in the region and that have been gradually built during the last two decades. ICT tools and infrastructure have provided a significant boost to the digital capacity of the region, strengthened the public inclusion mechanisms in the decision-making process at local level, and enabled new crucial services to the local farmers, citizens and business, speeding up the Smart Transformation process of the Trikala region.

The negative scenario revolves around a future where a digital future in Trikala is reached to a high degree. However, digitalisation and the Smart evolution of the region have shaped negative externalities for the society and agriculture in the region. The scenario is narrated through the eyes of a young farmer who relocated to the rural region of Trikala in 2027 opting to start a new cultivation and facing the first negative impacts of digitalisation when the regional authorities plan the further adoption of digital solutions for resource management and more specifically on water usage. The diversified demographic profile in the region, in conjunction with the inability of public authorities to deploy an integrated digital transformation plan, forms a significant obstacle for the further adoption of ICTs to promote sustainable practices. This ultimately leads to a dysfunctional Smart transformation that does not promote inclusion, transparency, and the focused adoption of digital solution serving the water management needs and sustainability of the region.

POLICY RELATED DISCUSSION

For the development of the Living Lab's future scenarios, a cross-section of actors was invited to contribute. They were coming from the fields of policy-making, research and innovation, farming, agronomy as well as Trikala's public administration agencies. The scenarios developed depict a form of an imaginary future assessment carried out in a decade's timespan with the purpose to capture how the identified strengths and opportunities as well as weaknesses and threats will evolve in the future and how they might affect the current stakeholders or create new unintended beneficiaries. The prevalent focal point that was brought up during initial discussions revolved around the lack of centralised water management planning and lacklustre collaboration among the municipal administrative agencies as well as the lacking data gathering and management that could enable a well-informed decision-making process on future actions.

DEFINING WATER NEEDS AND WATER USAGE HABITS WHILE CONSIDERING THE DEMOGRAPHIC SPECIFICITIES, SKILLS AND CAPABILITIES OF THE COMMUNITIES LIVING IN THE REGION OF TRIKALA, IS CRITICAL FOR DEPLOYING POLICY INTERVENTIONS THAT WILL ENABLE THE INTEGRATION OF SUSTAINABLE WATER MANAGEMENT INTO THE TRIKALA'S SMART DIGITAL TRANSITION.

Since the region is on track with 'Smart Transition' the future implementation of digital solutions and adoption of new tools and services can be perceived as realistic targets for Trikala's future.

However, there is a significant discrepancy in the pace at which digital transition is realised within the city of Trikala in comparison to rural areas of the region. Considering the significant digital skills gap that exists between the population in the urban and rural areas, the establishment of new tools and protocols remains a real challenge.

The different future conditions depicted in the scenarios developed indicate that Trikala's future planning must widen its scope and go beyond the sole adoption of digital tools, services, or establishment of 5G networks. The existing developments towards Trikala's digitalisation transition and smart city actions were used as the baseline on which a set of plausible futures were described. In both the pessimistic or optimistic turn of events, the main objective/challenge that 'makes' or 'brakes' the region's success in establishing sustainable water management practices and in larger scale (maintaining an actual-meaningful Smart transition course of action), is the planning of capacity building interventions tailored to the region's different communities and demographic profiles.

POLICY OPTIONS

Promoting Digital Literacy and developing Digital Skills

- Deploy horizontal actions, focused on alleviating the low levels of digital literacy in the rural areas of Trikala.
- Promote a wide uptake of public training programmes in the form of lifelong learning programmes, vocational training programmes as well as school and university education programmes will play a pivotal role in having the necessary capacity to implement new standards for sustainable water management and smart agriculture.

Steering Smart Transition towards Sustainable water management practices

- Shape a common course of action between the stakeholders and beneficiaries involved in the regions water management, building also on Trikala's smart and digital transition roadmaps to address enabling conditions for targeted innovation actions at a regional scale.
- Plan of Targeted actions that will contribute in the facilitation of existing water policies such as the 2nd River MPB (set measures for the protection of aquatic environment and safeguard sustainable water use) promotion of licensing of water included in CAP 2014-2020, enforcement of environmental tax of water status ratified in RDP 2014-2020, and further adoption of smart monitoring mechanisms.

Promoting Circular Economy

- Emphasise on future waste management actions to enable the transition towards a circular economy.
- Adopt measures to gradually ban single use plastics, while fine tuning the smart city actions to align with the new measures to achieve the targets of increasing reuse and recycling rates of municipal solid waste and reducing the landfill rate by 2030.
- Provide incentives in the form of financial mechanisms and training programmes to attract investments and upgrade local SMEs in a way that will accelerate the regions green and digital transition.

This policy brief is published in the frame of the EU-funded DESIRA project and aims to provide recommendations for policy makers on how to support digitalization in the context of Sustainable Water Management Practices in Trikala, Central Greece.

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