Policy and planning settings for the transition to water circular economy - barriers and drivers in place

Project Ô
Innovative circular water systems

Work Package 3 'Integrated water management, planning and circular economy'

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INTRODUCTION

Growing pressures on water are challenging decision-making processes and water circular economy (WCE) is increasingly been considered in national and local policies. The water-land-use nexus approach is a key driver for WCE and requires integrative resource approaches, enabled by policy and decision-making instruments and processes. This research analysed the policy and planning set-ups in four demosites, Almendralejo (Spain), Lecce (Italy), Omis (Croatia) and Eilat (Israel), to understand how they are prepared to accommodate a transition to WCE initiatives.

METHODOLOGY

The analytical framework is based on the design of a typical decision-making arena associated with the WCE and followed these steps:

- The research first focused on interpreting the water loops spatially.
- Then, a set of enabling factors were selected to guide the content analysis of the documents, considered representative of the policy and planning set-up on each place.
- The document analysis seek to understand whether and how water reuse or WCE are considered in existing water and spatial planning frameworks.

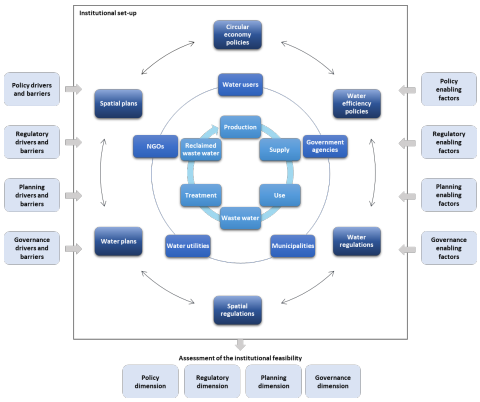

FIGURE 1. PROBLEM FRAMING FOR THE ASSESSMENT OF THE POLICY AND PLANNING SET-UP

RESULTS

The new water loops created by Project Ô technologies have different features, as summarized in Figure 2. In Almendralejo technologies are placed in wastewater treatment plant and water is to be reused for various purposes, in Lecce in a water treatment plant to recharge a aquifer, in Omis in a textile company to reduce freshwater consumption and in Eilat in a mariculture where reused water feeds back into the fish farm system and also discharged into the sea with better quality. The new water loops challenge current regulations, water quality standards, water balances, permits, risks management plans, monitoring schemes, contracts, stakeholders, prices, etc.

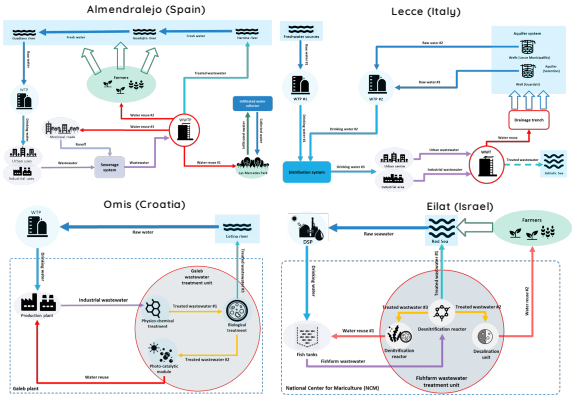

FIGURE 2. OUTER WATER LOOP SCHEMES ON THE FOUR DEMOSITES

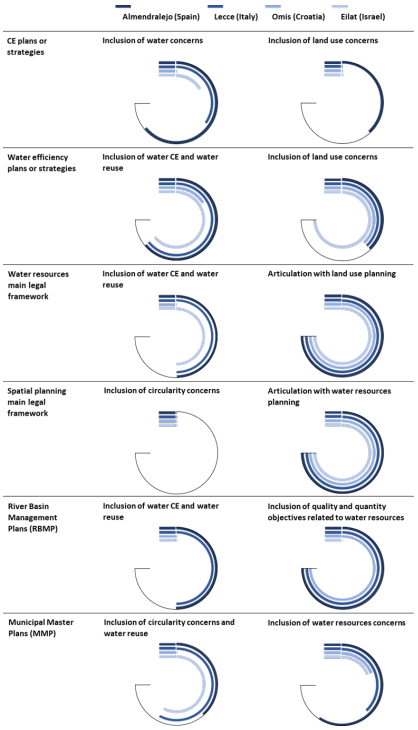

FIGURE 3. ASSESSMENT OF THE POLICY AND PLANNING SET-UP OF THE FOUR DEMOSITES.

The extent of each circumference (Figure 3) represents the degree of inclusion of the enabling factors considered in the analytical framework by the policy and planning documents in place at each demo site.

The assessment concludes with a mapping of the major drivers and barriers associated with the new water loops and the possible upscale of similar initiatives to implement water CE (See Figure 4).

The four countries' spatial and water resources planning frameworks foresee the need for a clear articulation with the water resources planning system. However, the concepts of circular, integrated or symbiotic territories are still poorly considered

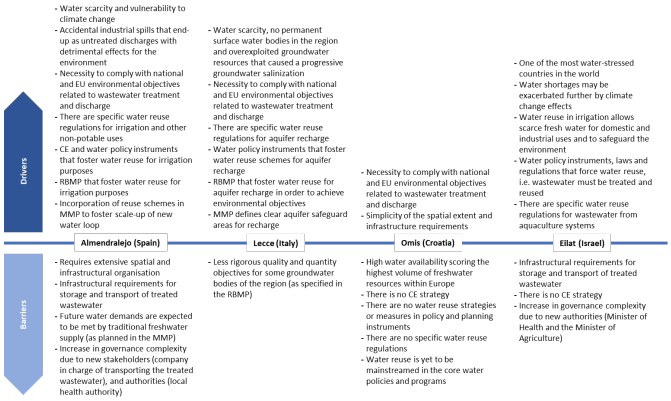

FIGURE 4. DRIVERS AND BARRIERS IN EACH DEMOSITE

CONCLUSIONS

The study identified different policy and planning contexts with reflect different major drivers and barriers for the transition towards the WCE and implementation of the new water loops. The most robust policy and planning set-ups were found in Almendralejo (Spain) and Lecce (Italy). In Eilat (Israel), although without a CE policy plan or strategy, presents a robust integration of water reuse in water policy planning and legal frameworks. Still the policy and planning contexts are likely to face new challenges to better facilitate a transition to WCE, while water reuse may reduce pollution loads on natural water bodies, water quality regulations, water monitoring and transportation require further attention.

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