



## Plastic, Packaging

Strategies to solve the problem of hardly recyclable Packaging Materials



## Bio-Waste

Extracting valuable compounds from different Bio-waste streams



## Water

Water Symbiosis Strategies in Industry, Agriculture, and Urban contexts



# Demonstrator 1

Reuse of industrial treated wastewater through on-demand treatment and management

RIBA-ROJA DE TÚRIA, VALENCIAN COMMUNITY, SPAIN



Circular  
Cities & Regions  
Initiative



UK Research  
and Innovation



Funded by  
the European Union



Start 2024



36 mo



€ 10.24 M



32 partners



9 pilots /  
8 regions



## About CircSyst

Resource extraction is responsible for nearly half of global greenhouse gas emissions and the vast majority of biodiversity loss. With 90% of world economy still linear, plastics, water and bio waste are treated as single use commodities rather than valuable resources. The CircSyst project addresses this challenge by developing Circular Systemic Solutions (CSS) that drive sustainable, circular economic models.

Over 36 months, 32 partners led by AIJU will run nine large-scale pilot systems spread across eight European regions, targeting three priority value chains from the EU Circular Economy Action Plan: water management, bio-waste valorisation, and plastics & packaging. The pilots exchange by-products and know-how so that, for example, a plastic fraction recovered in Greece can feed a recycling line in Spain. In this way, CircSyst forms an industrial-symbiosis network that supports the EU's Circular Cities and Regions Initiative (CCRI) and provides replicable and scalable solutions.

# About Demonstrator 1: Smart circular management of wastewater in industrial environments



Water scarcity as a climate change consequence is a big issue for industries and citizens in Spain. In the Valencian Community region, it becomes a major concern due to its vulnerability to droughts linked to its mediterranean climate. In this context, the application of circular economy principles to water management emerges as a solution to current and future challenges. In Riba-roja del Turia, a town located 20 km from Valencia, an innovative circular systemic solution is being developed as part of the CircSyst initiative, demonstrating the feasibility of smart wastewater management for multiple uses in an industrial context.

The wastewater treatment plant (WWTP) will serve as the main source of industrial water, producing the required quality and quantity through advanced tertiary treatment using disinfection and membrane technologies. An intelligent SCADA system will manage the real-time matching of water supply to demand within the industrial park.

Different companies require varying water qualities, so the system must accurately forecast reclaimed water availability and demand. A discriminative AI-based solution is being developed to support decision-making, ensuring optimal water production, minimal waste, and reduced energy use.

By integrating smart technologies into water treatment, the initiative aims to optimize resource use and promote sustainability.

## Who is involved?

AIDIMME, a technological institute which has become a sectorial and regional reference in topics such as circular economy or industrial symbiosis, is coordinating the demonstrator and designing both the wastewater treatment installation and smart management technologies. HIDRAQUA, who operates the wastewater treatment plant, will help with the operation of the demonstrator and collaborate on its design. Finally, AQUATEC will support data collection, and the Riba-roja del Turia's Town Council will lead the engagement of the local companies with the demonstrator.



Smart wastewater management

Industrial water reuse

Sustainable water management



## PARTNERS



## ASSOCIATED PARTNERS



[www.circsyst.eu](http://www.circsyst.eu)

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