



Innovative hybrid MBR systems
to promote Water Reuse
<http://www.life-aware.eu/>

CONTEXT

The need to overcome **freshwater scarcity** has led many countries to implement water reuse as viable alternative to source high-quality water. **Water reclamation and reuse** is increasingly considered as mean of providing alternative water resources within a framework of integrated water management. The prevention of the emission of priority and emerging pollutants through wastewater treatment plants effluents into the aqueous environment requires the development of treatment technologies that ensure the quality of receiving water bodies.

OBJECTIVES

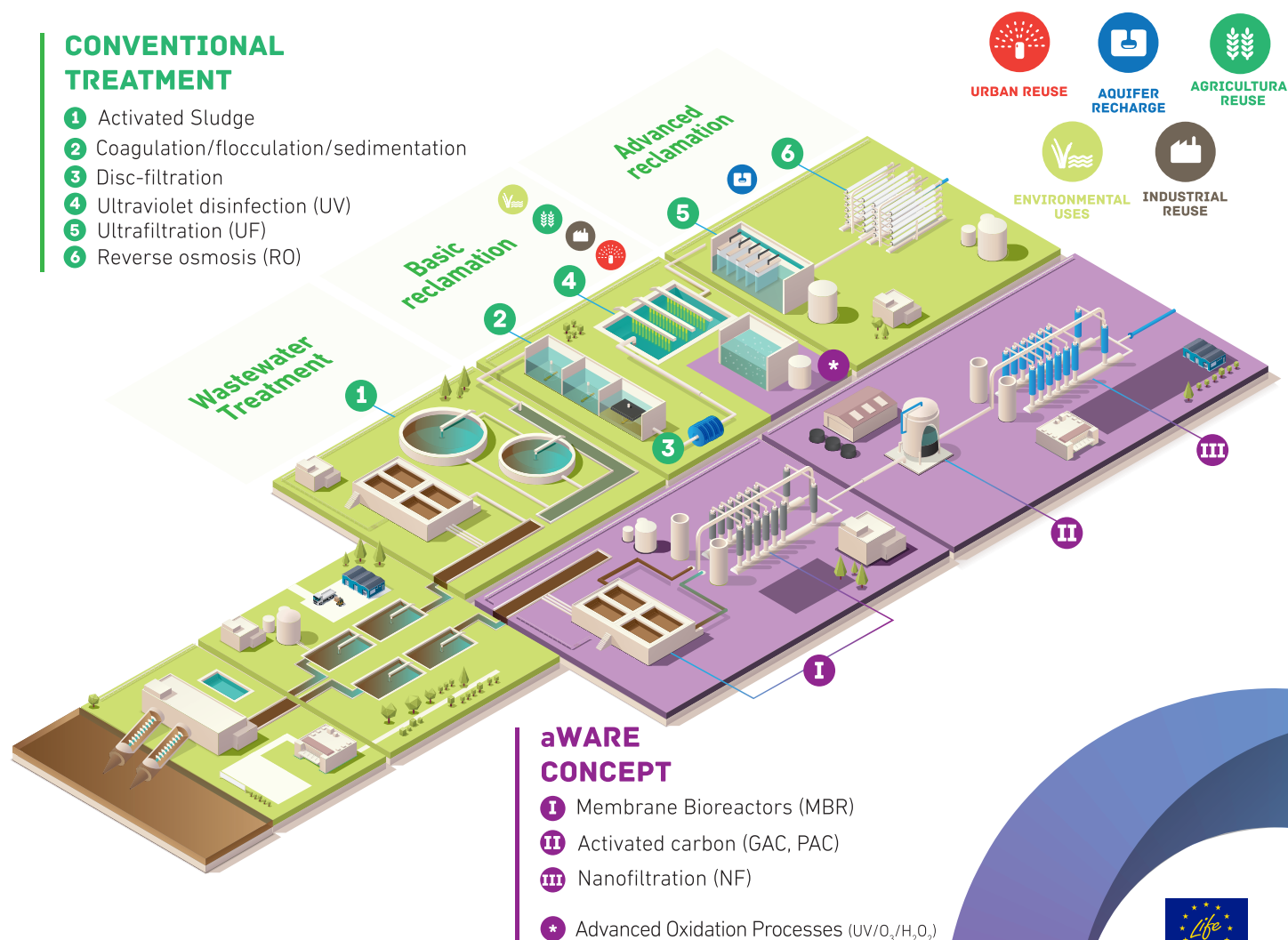
- ▶ To demonstrate the technical and economic feasibility of an innovative **hybrid MBR-PAC-NF** treatment scheme as an alternative to most commonly implemented water treatment and reclamation technologies and to compare them in terms of removal efficiency of **priority and emerging pollutants**.
- ▶ To conduct a **Life Cycle Assessment (LCA)** and **Cost Benefit Analysis (CBA)** for the hybrid MBR-PAC-NF system and the conventional wastewater treatment and reclamation plant.
- ▶ To optimise the operational parameters and fouling control strategies of an **advanced wastewater treatment scheme based on UF-RO** technologies.
- ▶ To consolidate knowledge about a wide range of **wastewater treatment and water reclamation technologies** and identify key issues regarding the production, demand and distribution of reclaimed water.
- ▶ To contribute to the achievements of **EU challenges in the water sector**, through demonstration of innovative technologies and management solutions. Widespread transfer of project outputs and know-how directly to stakeholders related to the water sector throughout Europe.

aWARE demonstration site

The water reclamation plant (WRP) of "El Prat" upgrades secondary effluent sourced from the Wastewater treatment plant (WWTP) in a basic and advanced treatment scheme designed to achieve required water quality for different uses within the Barcelona's Metropolitan Area Water Reuse Scheme.

CONVENTIONAL TREATMENT

- 1 Activated Sludge
- 2 Coagulation/flocculation/sedimentation
- 3 Disc-filtration
- 4 Ultraviolet disinfection (UV)
- 5 Ultrafiltration (UF)
- 6 Reverse osmosis (RO)



Scheme of the conventional treatment and the aWARE concept





"El Prat" Wastewater treatment and reclamation plants



"El Prat" reverse osmosis membranes



Granular Activated Carbon

PROJECT CHARACTERISTICS

Coordinator

CETaqua

Associated beneficiaries

Aigües de Barcelona and LNEC

Duration

1st January 2013 – 30th June 2016

Budget

2.631.249€

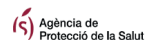
Funding

1.301.840 € LIFE+ Programme of the EC

BENEFICIARIES



STAKEHOLDERS



COFINANCED BY



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