

Improving current barriers for controlling pharmaceutical compounds in urban wastewater treatment plants

Why

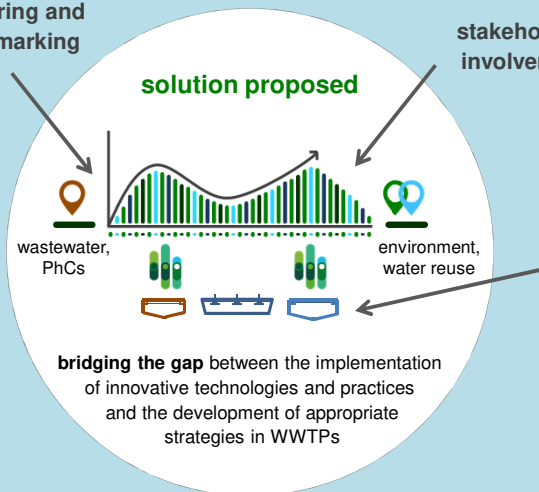
- **Pharmaceutical compounds (PhCs) are emerging contaminants of environmental-health concern** that, if not abated, may have unpredictable environmental and health impacts, impairing the preservation of drinking water sources and the development of wastewater reuse projects, **key-issues of sustainable water management**
- **Wastewater treatment plants (WWTPs) are crucial barriers against PhCs** but many of such compounds are resistant to conventional treatment, mostly depending on their characteristics and on the WWTP operating conditions. In the logic of resource efficiency, **cost-effective solutions based on the existing infrastructures are essential**



Objectives

- To demonstrate **measures for improving the removal of pharmaceutical compounds PhCs in urban WWTPs with conventional activated sludge (CAS) treatment**
- To produce valuable **knowledge for water resource protection from PhCs and associated environmental policy**

monitoring and benchmarking



wastewater enhanced treatment



Beirolas Lisbon



Faro-NW Algarve

demonstration WWTPs



3 coagulation – flocculation – sedimentation pilots

Expected results

knowing

- **Data on PhC occurrence in urban wastewaters** (850 samples analysed for 24 PhCs) to assist future developments of EU policy and legislation
- **Monitoring of PhC accumulation in clams** (150 samples analysed for 24 PhCs)

innovating

- **Chemical enhancement strategies** using eco-friendly adsorbents and natural coagulants
- **Operating strategies** identified using benchmarking tools (performance indicators and indices) to deliver overall good WWTPs' performance with respect to water quality, energy and chemicals efficiency

replicating

- **A low-cost investment and easy-to-implement solution** for improving PhC removal in WWTPs, while keeping operating costs to a minimum and maximising recovery of resources and energy efficiency
- **Cost-benefit analysis** using an innovative integrated approach

Beneficiaries