

IC4WATER RDI FUNDED PROJECTS BOOKLET

Project: Process Control Technologies for Water Reuse - Control4Reuse

Outcomes and expected impact:

Control4Reuse will contribute to promote a closed water cycle in society and industry/agriculture, introducing lowcost solutions for water reuse. Designing and operating systems able to manage temporary upsets in water quality and/or quantity, Control4Reuse aims at guaranteeing water availability in case of temporary scarcity. Furthermore, the water reuse approach proposed by Control4Reuse will also impact on the water and energy nexus providing energy-efficient water treatment able to optimize the energy usage needed for producing reusable water. From the academic point of view, part of the expected outputs from Control4Reuse also includes the availability of mathematical models, as well as the publications of results in international conferences (e.g., the 12th IWA International Conference on Water Reclamation and Reuse, the 10th IWA International Symposium on waste management problems in Agro-industries) and in peer-reviewed journals. From an educational and societal point of view, Control4Reuse will serve as an excellent platform for knowledge exchange among different communities and for stimulating the generation of new and innovative ideas. This will be the result of seminars and intensive courses for the plant operators and process engineering at the WWTPs and will promote the awareness and understanding of the project goals and achieved results.

The objectives in Control4Reuse are much more ambitious than *ad-hoc* solutions for a specific problem in a particular sector. This project buries the old idea of automation as a post-design solution and promotes new procedures where automation experts from different partners are necessary at the outset of the design of WW treatment-reuse systems, keeping the idea that WW should no longer be considered as waste but as a new resource in a circular economy. This is in line with Control4Reuse: Solutions for the achievement of Challenge 2 (Developing accessible solutions for clean water management to address UN SDG6 targets and associated SDGs), sub-topic 2b (wastewater treatment and recycling), and to address the expected impacts lists in the H2020 Societal Challenge 5, Call Topic SC5-11-2016. A number of models will be considered and integrated. Simulations based on interconnected models will allow investigating complex situations, which are difficult or costly to realize in practice. Moreover, solutions generated from this project could be a starting point for a commercial solution applied to the WW treatment reuse systems. Once a set of scenarios have been studied, the analysis of similar scenarios will be straightforward.

List of deliverables expected:

- D1.1 Requirements in terms of WWTP regarding water quality needed for reuse (month 03)
- D1.2 Validated models to be used for set-point generation (month 12)
- D1.3 validated models of treatment processes (aerobic MBR) (month 12)

<p>D2.1: Report on literature, selection of case studies, implementation/comparative analysis (month 18)</p> <p>D2.2: Report on literature, selection of case studies, implementation/comparative analysis (month 24)</p> <p>D2.3 Report on literature, selection of case studies, implementation/comparative analysis (month 30)</p>	
<p>D3.1: Report on literature, selection of FD methods, testing and comparative analysis (month 16)</p> <p>D3.2: Report on literature, selection of indexes, testing and comparative analysis (month 22)</p> <p>D3.3: Report on literature, selection of indexes, testing and comparative analysis (month 28)</p>	
<p>D4.1: Report on the evaluation of scenarios in simulation for Control4Reuse (month 22)</p> <p>D4.2: Report on the evaluation of scenarios for Control4Reuse (month 36)</p>	
<p>D5.1 Annual report of technical progress of the project in year 1 (month 12)</p> <p>D5.2 Annual report of technical progress of the project in year 2 (month 24)</p> <p>D5.3 Annual/final report of technical progress of the project in year 3 (month 36)</p>	
<p>Expected research results to communicate and disseminate (in very general terms)</p>	<p>Target groups for communication and dissemination activities:</p>
<p>1. open workshops, exhibitions, training activities to communities and technical staff and governmental agencies</p>	<p>general public and to the local communities</p>
<p>2. publications of results in international conferences and in peer-reviewed journals</p>	<p>research community</p>
<p>Experiments / Case studies (if any): location, type of experiments: two experimental sites, one in Murviel les Montpellier managed by Montpellier University, and other in Gruissan managed by the “Grand Narbonne Urban Community” will serve for implementation and demonstration tasks (WP4)</p>	
<p>Water Policy context / project contribution to policies (National, European, International – UN SDGs):</p>	

Solutions for the achievement of Challenge 2 (Developing accessible solutions for clean water management to address UN SDG6 targets and associated SDGs), sub-topic 2b (wastewater treatment and recycling), and to address the expected impacts lists in the H2020 Societal Challenge 5, Call Topic SC5-11-2016.

