TREATREC is a European Industrial Doctorate (EID) project funded by Marie Skłodowska-Curie Actions (MSCA) Programme of Horizon 2020.

TREATREC involves two academic partners (ICRA - Catalan Institute for Water Research and UdG - University of Girona) and two non-academic partners (ATKINS and AQUAFIN) with a clear aim of producing a group of young researchers capable of conducting high quality research, but also able to address industrial and societal needs and implement wastewater-related directives in practice.

The five fellow researchers recruited by TREATREC will conduct their scientific projects in an environment that combines industrial excellence in the development, design, construction and management of wastewater treatment systems, with complementary academic excellence in:

(a) improvement/upgrading of state-of-the-art technologies related to the fate and removal of microcontaminants as well as nutrient recovery from wastewater treatment systems and in

(b) applied research involving the development of decision support systems which allow for the encapsulation of knowledge for further use in decision-making processes.

As a general goal, academic and non-academic partners of TREATREC, including WWTP operators, engineers responsible for the design and a water authority, will collaborate to issue a set of recommendations for decision-makers on upgrading wastewater treatment plants for future challenges such as microcontaminants removal and nutrient recovery from a sustainable perspective.

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INTERDISCIPLINARY CONCEPTS FOR MUNICIPAL WASTEWATER TREATMENT AND RESOURCE RECOVERY.

TACKLING FUTURE CHALLENGES.

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After evaluating different combinations of available technologies, the fellow will be able to propose more sustainable solutions for microcontaminants removal. He will conduct a holistic evaluation in terms of technological removal efficiencies and most relevant design and operational conditions, costs, and environmental aspects, for different combinations of technologies, also exploring the potential for water reuse.

This fellow will devote her PhD to seeking a suitable reject water treatment in order to optimize the nutrients recovery and the energy efficiency of the water line according to the removal of nitrogen from reject water. Also, thanks to the industry-academy co-supervision of the PhD, the knowledge transfer of the outcomes will provide the industrial partner a possible technology development able to reach the market within a period between 4-5 years.

This research provides a means to risk assess urban wastewater treatments response to current and future stressors in combination. Findings will be from pilot scale urban wastewater treatment experimentation, advanced analytical techniques for the quantification of trace contaminants and GIS strategic modelling of an urban wastewater catchment. It is envisioned that a tool enabling wastewater treatment managers to assess the risk posed by multiple stressors to their works will be produced. The benefits of this research would be improved receiving water quality. This would be achieved though the maintenance of a consistent quality of effluent, thus allowing saving in terms of energy and expenditure due to the mitigation of stress events.