

# **SaltGae project: algae to treat saline wastewater**

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SaltGae will develop and demonstrate a techno-economically viable solution for the treatment of saline wastewater from Food & Beverage industry. SaltGae will be a case study to overcome the cross-cutting barriers to innovation identified in the European Innovation Partnerships (EIP) on Water.

Water in the EU is under increasing pressure due to the continuous growth in demand and in pollution originated in human activity. Several directives have been implemented (i.e. Water Framework Directive 2000/60/EC) establishing the maximum level of pollutants allowed in wastewater discharged in natural watercourses.

In particular, saline wastewater is extremely difficult and expensive to treat, and its discharge represents a major threat to the environment, due to the presence of organic content suspended solids, nutrients (mainly nitrogen and phosphorus) and salt (concentrations up to 15%). Conventional wastewater treatments are ineffective for this kind of wastewater, as the bacterial processes typically used for the elimination of organic matter and nutrients are inhibited under high salinity contents.

This issue affect many industrial sectors, such as food processing, leather industries, and land-based aquaculture. Therefore, generally combinations of biological and physicochemical methods are used with a great increase of the treatment's costs, making it unaffordable for SMEs, who voluntarily decide not to comply with EU directives and discharge without prior treatment, causing severe damage to the environment.

SaltGae project aims to: 1) Develop a techno-economically viable solution for the treatment of saline wastewaters and establish three DEMO sites for the real scale demonstration of sustainable and eco-innovative modular-based technology platform. DEMOs will take place in Slovenia (treatment of tannery WW) Italy (whey WW) and Israel (aquaculture WW); 2) Develop an innovative platform for the mobilization and networking of stakeholders from all the different sectors related to wastewater, and for the dissemination of results with the aim of promoting paradigm shift in perception from 'wastewater treatment' to 'resource valorization'.

The expected impacts of the project are: Contribution to the implementation of the EIP Water across a number of key areas: Water and wastewater treatment, Water Reuse and Recycling, Water Energy Nexus, Cross Cutting Challenges; Creation of new market opportunities, based on the valorization of sludge, effluents and biomass; Resource efficiency and environmental performance; Development and uptake of water efficiency standards and promotion of interoperability between water information systems; Support to the EU Environmental Technology Verification Pilot (ETV) programme.

The SaltGae project involves 20 project partners from Belgium, France, Italy, Ireland, Israel, Portugal, Slovenia, Spain and Sweden. The consortium includes strong SME representation with: 7 SMEs specialized in the design, build and operation of waste water treatment plants and algae technology based systems; 7 Research institutes with expertise in materials sciences, biotechnologies, mechanical and manufacturing engineering and Life-Cycle Analysis; 3 Industrial no profit associations representing the desalination, food in-novation and biomass industries; 2 SMEs providing management, marketing and innovation leadership; 1 SME developing innovative animal feed products.

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