Demonstrating integrated innovative technologies for an optimal and safe closed water cycle in Mediterranean tourist facilities (demEAUmed)

demEAUmed at Hotel Samba

This project demonstrates and promotes innovative technologies for an optimal and safe closed water cycle in Euro-Mediterranean tourist facilities. Using alternative water sources, such as treated groundwater, treated rainwater or the reuse of treated grey water and/ or wastewater within a resort results in the reduction of fresh water consumption in hotel installations like Samba Hotel and the establishment of green and recreational areas. (www.demeaumed.eu)

ELECTROCHEMICAL OZONATION

Responsible partner: **Frauenhofer** Gesellschaft zur Förderung der Angewandten Forschung E.V. (Germany)
Partner: **Eilenburger Elektrolyse- und Umwelttechnik** GmbH (Germany)
Oxidative water treatment AOP (Advanced Oxidation Processes) with Electrolytic generation of Ozone. Ozone generation within the water-flow is possible. Efficient for small units up to 10 g/h of Ozone.

REMOVAL OF MICROPOLLUTANTS BY ADSORPTION PROCESSES

Responsible partner: **Frauenhofer** Gesellschaft zur Förderung der Angewandten Forschung E.V. (Germany)
Partner: **SICO** Technology GmbH (Austria)
Photolytic Oxidation through use of a specific and new 172 nm-light-source to generate highly reactive hydroxy radicals in an adapted reactor system.

PHOTOELECTRO FENTON PROCESS

Responsible partner: Acondicionamiento Tarrasense Association **LEITAT** (Spain)
Photoelectro-Fenton process electrochemically generates Fenton reagents (hydrogen peroxide and iron (II)) and combines its oxidation effect with the use of (solar) light for increasing the efficiency on organic matter removal. It can be applied to several types of effluents for removing emergent/priority pollutants.

ELECTROCOAGULATION FLOATING

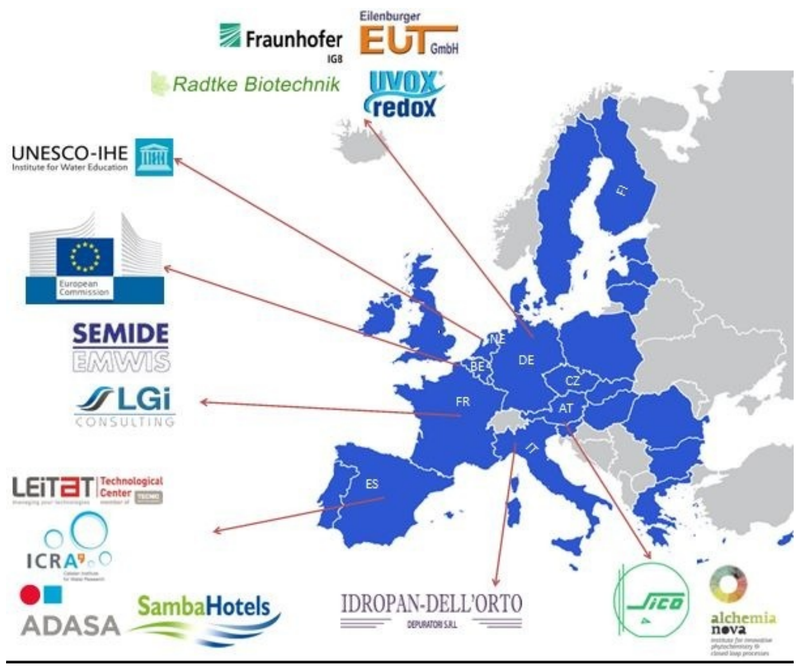
Responsible partner: Acondicionamiento Tarrasense Association **LEITAT** (Spain)
Electrocoagulation-floating technology electrochemically generates the coagulum agents (mainly iron(II)/ iron(III) or aluminium(III) hydroxides) for removing turbidity or suspended solids from the Effluent.The Technology is characterized by several polarity inversion phases that involve mainly two processes: a) coagulum generation, b) flotation through oxygen and hydrogen generation.

UVOX TECHNOLOGY

Responsible partner: STICHTING IHE DELFT (**UNESCO-IHE**) (Netherlands)
Partner: Wapure International gmbh (**UVOX**) (Germany)
The UVOX process combines the disinfecting effect of ultraviolet light with the oxidizing effect of ozone and hydroxil radicals in one single system with one single lamp. Ozone and hydroxil radicals lead to inactivation of pathogens and microorganisms in the water and the oxidation of (micro)pollutants.

PLIMMER

Responsible partner: Idropan dell Orto Depuratori SRL (**IDROPAN**) (Italy)
Plimmer is a water treatment system that treats ground/surface water or other treated waters to drinkable standards. This Capacitive Deionization (CDI) is an anion-membrane technology where the ions are attracted to a pair of electrodes as water flows through.



VERTICAL ECOSYSTEM (This is what is in front of you)

Responsible partner: **alchemia-nova** GmbH Institute for innovative phytochemistry & closed loop processes (Austria)
Partner: **Radtke Biotechnik**, Dipl. Biologe Manfred Radtke (Germany)
The Vertical Ecosystem is a greywater purification system based on indoor constructed wetlands with cascading set-up, combining sub-surface horizontal water flow with stage wise vertical flow. Plants function in symbiosis with rizosphere microorganisms providing water cleaning abilities.

SMART AIR MBR

Responsible partner: Catalan Institute of Water Research (**ICRA**), Girona (Spain)
Membrane bioreactors (MBR) are a consolidated technology for biological treatment of industrial / municipal wastewater producing high quality regenerated water. This project extends the applicability to tourist resorts with several optimizations.

Most technologies are located in a room beneath this stand-point

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