CALL

H2020 - WATER 2014

EUROPEAN'S UNION HORIZON 2020

RESEARCH AND INNOVATION PROGRAMME

Grant Agreement No. 641998

BUDGET

TOTALL BUDGET : 2,361,622€

FINANCING 1,909,292€

PROJECT DURATION

SEP 2015 · AUG 2018

PROJECT PARTNERS

REMEB is being developed by a consortium comprised by 11 partners from scientific world and public and private sectors from seven different countries: Spain, France, Cyprus, Norway, Italy, Turkey and Colombia.

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eco-friendly ceramic MEMBRANE BIOREACTOR MBR based on RECYCLED agricultural and industrial wastes for waste water reuse

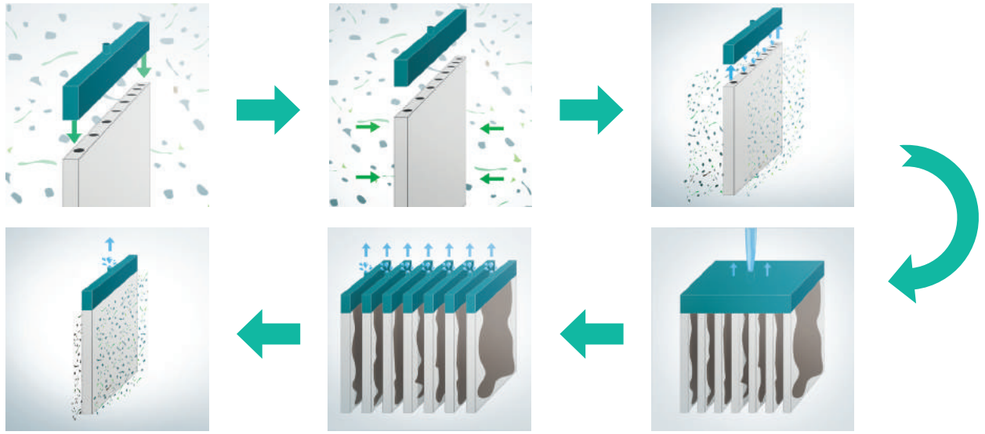
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 641998.

With the support of the European Union's Horizon 2020 Research and Innovation programme, the REMEB consortium has developed and validated a recycled ceramic membrane bioreactor (MBR) made from wastes from different agricultural and industrial processes for wastewater reuse.

In the MBR, the membrane acts as a barrier between the biomass and the treated water.

It is one of the most advanced technologies in the field of wastewater treatment because of its permeate quality.

WASTEWATER TREATMENT WITH MBR TECHNOLOGY



The REMEB project managed to successfully scale the manufacturing process of the recycled ceramic membranes.

These were initially manufactured at laboratory scale and were later reproduced in a real environment in a Spanish ceramic tile manufacturing company working by the extrusion method.

The end product means the opening of a new line of business for the ceramic sector.

WASTES USED FOR THE REMEB MEMBRANES MANUFACTURING

In parallel, pilot-scale membranes were manufactured with these and other residues (coffee, hazelnut, dolomite, shells) in Italy and Turkey, demonstrating the potential for replicability of the technology in other European countries.
As a first market approach, the MBR REMEB was implemented to recover municipal wastewater for its use in agriculture in Aledo, Murcia.
It may have other applications though, such as garden irrigation or street cleansing. The REMEB MBR is also applicable in the industrial sector to reuse water in the industry itself.

Analysis of the wastewater treated by the REMEB MBR concluded that the permeate meets the Spanish regulation for the reuse of treated water (R.D. 1620/2007), thus being optimum for its use.

FEATURES OF THE REMEB MBR

	CURRENT MBR	REMEB MBR
TYPE OF MEMBRANES	Flat sheet organic membranes	Flat inorganic membranes
HEIGHT	1,020 mm	200 mm
WIDTH	490 mm	500 mm
MODULES	4	4
MEMBRANES/MODULE	200	50
M2/MODULE	160	10
TOTAL SURFACE IN M2	640	40

GOALS ACHIEVED BY THE REMEB CONSORTIUM:

- ✓ Develop and validate a sustainable and competitive MBR
- ✓ Reduce the cost of the MBR technology
- ✓ Manufacture a new eco-friendly and innovative product
- ✓ Boost diversification in the ceramic sector > Ceramic membranes
- ✓ Confirm its potential for implementation and replicability in other countries
- ✓ Valorise agro-industrial wastes that will not have to be landfilled
- ✓ Ensure the quality of the water treated by the system for its reuse in agriculture.