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demEAUmed

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

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Newsletter

Editorial

Javier Casellas Ferrer

Dear Reader,

As the project coordinator of demEAUmed, it is an honor for me to present the third newsletter of the project where you can read the project final outcomes and developments achieved. These three and a half years have been nothing but a successful collaboration among all the participants of demEAUmed. The consortium has achieved the proposed milestones and deliverables as planned initially.

The project's demo site, Hotel Samba, was in the region of Costa Brava in Catalonia, in the city of Lloret de Mar. Innovative technologies were in action to treat grey and wastewater from hotel Samba, thus saving fresh water and reducing pollution released to our precious environment. This main achievement has been possible thanks to the excellent work performed by all the partners and their commitment towards the development of the future decentralized wastewater treatment in Mediterranean tourist facilities.

On behalf of the whole demEAUmed's team, I hope you enjoy this third newsletter and I warmly welcome you to visit our website to have more information about us and demEAUmed and to watch the released project video to know more about demEAUmed project.

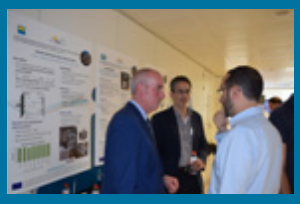
Successful final conference of demEAUmed project!

Watch demEAUmed video!

demEAUmed Final Conference was held in Barcelona on May 18th 2017. Results, benefits and opportunities of demEAUmed technologies in managing, treating and recycling water were presented by demEAUmed partners and discussed with different experts from the tourism and environmental sectors.

Representatives of the companies, hotels and educational institutes included: Suez Environnement, CTM, the University of Girona, IVL, Robinson, the Gremi d'Hotels de Barcelona, Melia Hotels International, the African Water Facility, and CEDEX.

Check out the presentations and pictures of the event!



demEAUmed: successful application of eight innovative technologies

Gianluigi Buttiglieri, demEAUmed scientific manager

Gianluigi Buttiglieri, scientific manager of demEAUmed project, explains that a broad variety of technologies were tested during demEAUmed demonstration stage. They were successfully integrated and the synergies among them as well as their feasibility as combined treatments were evaluated.

Results obtained for the primary treatment technologies in the greywater line (i.e. SmartAir MBR, vertECO, SPEF) were above expectations in output water quality and continuous operation robustness, also for the micropollutants. The integration of Plimmer technology provided a high cost-effective alternative for further treating greywater streams which potential reuse would require low conductivity values. For wastewater line treatment approach for Hotel Samba facilities, it was designed to establish three possible trains of technologies, conformed by two common units (i.e. ECEF, SmartAir MBR) and three possible tertiary units based on radically different treatment approaches. ECEF and SmartAir MBR successfully complied with these requirements in a very stable and accurate way, maintaining very low maintenance requirements. The three tertiary treatment alternatives considered (electro-ozonation, 172nm UV and Plimmer) successfully ran their tests, obtaining major outcomes regarding their capabilities of providing diverse water qualities for reuse, accomplishing some very promising results to that extent. Read the full results of the application of the eight technologies on demEAUmed website.

demEAUmed policy brief: Water reuse legislations in the Mediterranean tourist facilities and possible recommendations

The tourism sector is highly dependent on water resources. The facilities offered, such as spas and wellness areas, aquatic centres, golf courses, swimming pools and green areas irrigation, are highly water intensive and mainly fresh water consuming. Therefore, the development of a closed water cycle in this highly water-intensive economic sector is needed.

An analysis of existing water quality regulations related to all possible water uses in tourism facilities at European, national and international levels has been carried out by demEAUmed project. Furthermore, the existing barriers of wastewater and greywater reuse detected during the demEAUmed project were identified and the consortium has given some improvement measures as recommendations which are explained briefly in the table below:

	Barrier	Improvement measures
Social	Low public/governmental awareness and acceptance on water reuse	Awareness campaigns to explain environmental and economic benefits of water reuse practices
		Involvement of all the stakeholders at early stages of water reuse projects
	Consumer's lack of confidence in the health and environmental safety	Public information programmes about water security of urban water cycle management
Economic	Water reuse economic viability	Design of specific water pricing policies
		Provision of adequate incentives (administrative, institutional and financing) to develop water reuse projects
Technological	Low efficiency, reliability or knowledge of water reclamation treatment processes	Implement small-scale decentralized water reclamation treatment processes/plants
		Promote funding programmes for water reuse technology development
Policy	Lack of harmonization of water reuse legislation at European level	Develop harmonized and adequate water reuse standards at the European level, including the establishment of water quality parameters to be monitored and limit values
	Disregards local conditions and feasibility conditions with respect to the implementation of water reuse standards	Develop a flexible, legally-binding framework on water reuse at the European level

To read the full policy-brief, please visit demEAUmed website

Sustainability assessment of demEAUmed solution

An integrated assessment including the environmental and socio-economic impacts of the innovative technological solution developed in demEAUmed project has been undertaken by consortium under the leadership of the Sustainability Division of LEITAT.

DemEAUmed technologies

The assessment analyses demEAUmed technologies in terms of environmental impacts (e.g. carbon footprint, water scarcity, energy demand, pollutant removal eco-efficiency) in order to provide environmental improvement measures and indications of their applicability in real case scenarios as well as the cost. Two different water cycles have been studied: greywater line and wastewater line (combining greywater with blackwater from the toilets and kitchen water). In addition, social impacts and the perception of demEAUmed project on society have been assessed.

In general, the highest environmental impacts of demEAUmed technologies are related to energy consumption as well as the use of some materials in the construction (e.g. stainless steel) or the maintenance tasks implied (e.g. change of electrodes or other components). In this sense, the project has analysed the potential environmental savings that could bring the use of alternative materials, the lifespan extension of some components or the consumption of renewable energy sources.

To read the detailed results on the environmental and cost assessment of the technologies as well as the social assessment based on a survey of Samba hotel clients, please check demEAUmed website.

Bringing innovation to market:

Spin-off to commercialize VertECO, UVOX and Radtke Biotechnik technologies

The cooperation among demEAUmed partners has been proven to be very fruitful, not only in terms of sharing best practices and the integration of the 8 technologies within the demonstration site at Samba hotel, but beyond that.

To this end, the spin-off company blue carex phytotechnologies GmbH has been established. Principal among these innovations is the building integrated vertical ecosystem, which we call vertECO®, which was optimised and validated during the course of demEAUmed project. This spin-off will also include UVOX technologies (from WAPURE International) and Radtke Biotechnik consultancy services in its portfolio of products it intends to commercialize in selected European markets, with a focus on Mediterranean countries. Complimentary technologies from Idropan Dell'Orto Depuratori, like Plimmer or Ozone sterilisation, will also be part of the offered solution portfolio. Further information is available on demEAUmed website.

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