

demEAUmed Decision Support System and Modelling

Eight categories of innovative technologies together with a monitoring control tool and **decision support system** are integrated and demonstrated in the demonstration site of the European project demEAUmed 'demonstrating integrated innovative technologies for an optimal and safe closed water cycle in Mediterranean tourist facilities.' This factsheet presents **demEAUmed decision support system**.

Description

demEAUmed Decision Support System (DSS) defines best water management options in touristic facilities taking into account the considered water treatment solutions. It evaluates different scenarios of water sources, water/wastewater quality, demands and changes in the environmental conditions and to define the best management alternatives for each scenario.

The DSS is composed of three components:

- **Water cycle model** - the user designates the services offered by the hotel and then inputs the characteristics of the water-using devices of the hotel.
- **Reuse technologies** - the user determines the reuse pathways between the water-using devices as well as chooses the treatment technologies to be used to treat the reclaimed water
- **Optimization layer** - determines ideal reuse technology use scenarios by comparing the environmental, social, and economic indicators.

Once run, the results show the water flows, qualities, and savings. In addition, the environmental, social and economic impacts are also quantified.

This program is web-based and assumes steady state for the hotel that is being modelled. It is programmed in Java and can be used by anyone with an interest in the possible benefits of implementation of an onsite water reuse system in a hotel. If necessary the user can also modify values such as the frequency with which the guests use the various water-using devices to improve model accuracy.

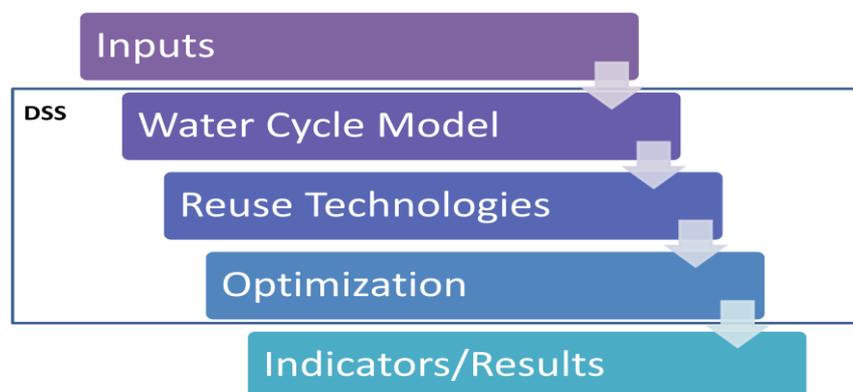


Figure 1: Conceptual design of the DSS

Applicability

This DSS can be used to model the water management systems of most types of hotels. Accuracy is determined by how specific the data is to the hotel being simulated. This tool can aid hotel managers and water treatment technology companies quantify the following:

- Savings due to water reuse
- Water flows throughout the water management system
- Water qualities of all of the water flows
- Energy use associated with the operation of the treatment systems
- Chemicals needed for treatment

In addition, the DSS can also quantify the degree to which water management systems affect the environment, incur economic costs, and affect the society. Comparisons can also be made between scenarios to determine the optimum technologies.

Innovation Factor

- Possibility of simulating a diverse array of hotel water management systems in many contexts
- Determination of the quantity and quality of each of the water flows within the hotel
- Estimation of the water savings via water reuse systems
- Estimation of the environmental, social and environmental impacts of different water management system configurations

Contact:

Mark Santana, Institut Català de Recerca de l'Aigua (ICRA)

Phone : (+34) 972 18 33 80

Fax : (+34) 972 18 32 48

Email: msantana@icra.cat

Please find further information and updates on demEAUmed project, its technologies, monitoring control tool and DSS at: www.demeaumed.eu



Disclaimer: This document has been produced with the assistance of the European Union. The contents of this document are the sole responsibility of demEAUmed Consortium and can in no way be taken to reflect the views of the European Union.