

POSTER EXHIBITION

Type of poster	Title	Presenter
DEMEAU results	European MAR catalogue: an exhaustive compilation of historical and existing facilities to promote their implementation	KWB Christoph Sprenger
DEMEAU results	Pharmaceuticals fate and removal in MAR systems under different conditions: international literature review	A21 Mariona Miret Ester Vilanova
DEMEAU results	Simulation of an innovative enhanced system of MAR in Barcelona: column experiments with reclaimed water to test the reactive organic layer	CETAQUA Marta Hernández
Invited speaker	Berlin case study: an example of the application of advanced hydrogeological characterisation for the understanding of emerging pollutant's fate in the aquifer	BWB Gesche Grützmacher
Invited speaker	Water Recovery Project: the first experience of deep injection in Castellón, results of the first phase and next steps	IGME / UJI Ignacio Morell Bruno Ballesteros
Invited speaker	MAR & SAT-MAR in Spain: Facilities, experiences and panorama	TRAGSA Enrique Fernández Escalante
Invited speaker	MARSOL: Demonstrating Managed Aquifer Recharge as a Solution to Water Scarcity and Drought	TRAGSA Enrique Fernández Escalante



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MANAGED AQUIFER RECHARGE AND EMERGING MICROPOLLUTANTS

UTILITY EVENT

Aigües de Barcelona

Can serra, Ctra. Sant Joan Despí, 1
Cornellà de Llobregat, Barcelona

2nd October 2014



Aigües de Barcelona



Demonstration of promising technologies to address emerging pollutants in water and waste water

Instrument: FP7-ENV

Start Date: 01/09/2012

Duration: 36 months

Consortium: 16 partners from 5 European countries

Project Coordinator: Theo van den Hoven, KWR Watercycle Research, The Netherlands

Key Words: Demonstration, innovation, water, wastewater, emerging pollutants, membrane filtration, advanced oxidation, bioassays, managed aquifer recharge, technologies, prototypes, standardization, end-user management, resilience measures

DEMEAU is a forward thinking research project that aims to address future threats to European water resources associated with emerging pollutants. Small concentrations of emerging pollutants are increasingly found in water resources due to the increased use of e.g. pharmaceuticals, industrial chemicals, and cosmetics. Demographic and climate change and deteriorating water infrastructure further compound water quality and safety. Technologies have been developed to deal with emerging pollutants, however, emerging pollutants are currently not included in standard monitoring programmes and treatment routines in Europe. Building on the knowledge, prototypes and practices from previous EU research projects, DEMEAU demonstrates the effectiveness and feasibility of four new promising technologies through the implementation of large-scale pilot projects across Europe. The technologies include Managed Aquifer Recharge (MAR), Hybrid Ceramic Membranes (HCMF), Hybrid Advanced Oxidation (HAO) and Bioassays (BioA). These types of cost-effective and efficient technologies need to be further developed and implemented now to ensure the provision of safe drinking water in the future. Life Cycles Analysis (LCA) & Life Cycle Costing (LCC) show cost effectiveness and environmental suitability of the technologies and benchmark the novel technologies against existing ones. Central to the approach, is DEMEAU's cooperation with the water utilities across Europe, which establishes a wide customer base for the technologies and ensures the long term security of water, waste water services and public health. Exploitation takes place through action research with universities, research institutions, innovative SME's, launching water utilities and policy makers.

Aigües de Barcelona (AB) is the main water operator in the Barcelona Metropolitan Area and is responsible for supplying more than 3 million inhabitants. AB sits on the board of trustees of CETAqua, a research partner in the Demeau project, alongside the Universitat Politècnica de Catalunya and the Public Council for Scientific Research.

Since 2013, AB manages waste water treatment in Barcelona, providing management expertise on multiple facets of the water cycle from an integrated perspective. AB has been at the forefront of implementing Managed Aquifer Recharge and has applied the technique in the Llobregat region. Since the 1960s, AB undertakes scarification of the river bed to improve natural infiltration of surface water to the aquifer, and adapted their pumping wells to an ASR system (Aquifer Storage and Recovery) shortly after. AB contributes an integrated, end-user's perspective to research on MAR in the DEMEAU project.



Currently, AB operates the biggest waste water reclamation plant in Barcelona, located in El Prat del Llobregat. This reclamation plant produces 12,600 m³/h. The reclaimed water feeds into the MAR system, providing recharge water to the MAR facilities located nearby. The DEMEAU delegation will visit this facility in the field trip in this event.

AGENDA

	Timetable	Title	Speaker		
Presentation of the status quo of Managed Aquifer Recharge within DEMEAU and beyond	9:00–9:15	Welcome & Introduction	CETAQUA Tomas Michel		
	9:15–9:30	European MAR catalogue: an exhaustive compilation of historical and existing facilities to promote their implementation	KWB Christoph Sprenger		
	9:30–9:45	Pharmaceuticals fate and removal in MAR systems under different conditions: international literature review	A21 Mariona Miret Ester Vilanova		
	9:45–10:00	Simulation of an innovative enhanced system of MAR in Barcelona: column experiments with reclaimed water to test the reactive organic layer	CETAQUA Marta Hernández		
	10:00–10:15	LCA / LCC of MAR systems: application in the Llobregat case study.	KWB Christian Remy		
	10:15–10:30	MAR systems in Barcelona: a multi-system to improve water availability in the aquifer (or) MAR experiences in Barcelona with reclaimed water	Aigües de Barcelona Pere Verger		
	10:30–11:00	Coffee break / Poster Session & Networking			
	11:00–11:20	Berlin case study: an example of the application of advanced hydrogeological characterisation for the understanding of emerging pollutants fate in the aquifer	BWB Gesche Grützmacher		
	11:20–11:40	MAR & SAT-MAR in Spain. Facilities, experiences and panorama	TRAGSA Enrique Fernández		
	11:40–12:00	Water Recovery Project: the first experience of deep injection in Castellón. Results of the first phase and next steps.	IGME / UJI Ignacio Morell Bruno Ballesteros		
Group discussion on the challenges of MAR implementation	12:00–12:15	Identification of barriers and drivers for MAR implementation (WA5). Presentation of the results of the survey.	KWR Miranda Pieron		
	12:15–13:30	Participative activity with the special contribution of: Professor Emilio Custodio (Hydrogeologist, Technical University of Catalonia) Jordi Martín (Water Quality Manager in Aigües de Barcelona) Alfredo Pérez Paricio (Catalan Water Agency, Authorisations department) Moderator: Marta Hernández (CETAqua)			
	13.30–13.45	Wrap up & Conclusions	CETAQUA Marta Hernández		
	13:45–15:00	Lunch			
Field trip	15:30–17:30	Visit to the WWR plant of El Prat del Llobregat and the Hydraulic Barrier against Sea Water Intrusion. Guide: Teresa Garrido (ACA)			