

# Water challenges for a changing world

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Editorial Board

collaborations

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### Water JPI workshop on “Valorization of water research and innovation outside Europe”

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The Water JPI, as part of the CSA IC4Water, is looking at opportunities to develop the valorization of water research and innovation outside Europe. To progress this work, the Water JPI in cooperation with the WssTP, are inviting you to participate in the Water JPI Workshop on “Valorization of water research and innovation outside Europe”, which will be held on Tuesday 19<sup>th</sup> March 2019 in Brussels, back-to-back with the WssTP Water Market Europe event, and in the same premises. One of the objectives of the workshop is to present examples of projects, platforms, networks, and other initiatives which, through RDI partnerships often in cooperation with other stakeholders, can serve as inspiration for others who would like to enter into such initiatives with a dual purpose to promote business development and valorization of the European water sector and to support initiatives in the beneficiary countries. For more information, please see the programme of the event. Registration is free but compulsory, and upon acceptance of the led organizer due to the limited capacity in the venue.

Progress on water JPI

### 2017 Joint Call kick-off meeting of funded projects, Paris February 6th, 2019

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In the framework of the Water CSA IC4WATER, launched in 2017 for developing International Cooperation, eight transnational projects have been recommended for funding, focused on the achievement of the UN Sustainable Development Goals (UN SDGs). Ivar Berthling, RCN, and the Water JPI coordinator Dominique Darmendrail held a short presentation on the IC4Water call and Water JPI in general. Following the projects presentations, more information around Water JPI and open data/open access was provided by Alessandra Casali, ISPRA, and project participants had a chance to talk to Funding Partner Organisations (FPO) representatives present. The main challenges and focus of the funded projects are: a) multiple pressure effects on ecosystems and ecosystem services as well as effective mitigation and developing accessible solutions for clean water management b) new governance and knowledge management approaches by new tools for water management aimed at setting up innovative alternatives suitable for decision-making; c) education and communication initiatives to raise social awareness of consumption habits and water scarcity and to increase the levels of social acceptance and use of recycled water.

The research coordinators presented their successful activities, and they have been interviewed about the main scientific gaps and the challenges and to reach the targets set out:

**UBWAT** - Designing, implementing, monitoring and understanding a grey water drainage and partial treatment system within an urban informal settlement – Coordinator: Craig Sheridan (South Africa) – The main scientific gap is the detailed understanding of how the grey water drainage works. Bureaucratic, legislative, socio economic and political challenges are the main issues to be faced.

**SMART Control** - Smart framework for real-time monitoring and control of subsurface processes in managed aquifer recharge applications – Coordinator: Catalin Stefan (Germany) - The main scientific gap is to increase the understanding of the risks associated with managed aquifer recharge. The main challenges are to find solutions suitable for the

different regions where partners are located and their corresponding different climate conditions and hydro-geological conditions.

**NANO-CARRIERS** - Micro- and nanoplastics as carriers for the spread of chemicals and antibiotic resistance in the aquatic environment: Ian Allen (Norway) - The main scientific gap is the understanding of the micro and nano plastic as carriers of chemicals into the environment through water and as carriers of anti-bacterial resistant chains. The main challenge is to develop the tools for the quantification and characterization of these particles at nano scale.

**MadMacs** - Mass development of aquatic macrophytes – causes and consequences of macrophytes removal for ecosystem structure, function, and services: Susanne Schneider – (Norway) – The main scientific gap is to understand the mass development of macrophytes occurring all over the world and the consequence of their removal from the ecosystem. The main challenge of the project is making studies carried out in different places comparable, so that we can predict what is going to happen in different conditions.

**Io.T.H2O** - IoT for Supervision and Control of Water Systems - Harold Roelawski (Germany). The main scientific gap is the improvement of management and control of water systems by introducing local technologies. The main challenge is to use sensors including communication technology to make them ready for the internet of things approach; once we reach this, to then use data for implementing models based on artificial intelligence.

**GlobalHydroPressure** - Model-based global assessment of hydrological pressure - Cintia Bertacchi Uvo (Sweden) - main scientific gap the connection of different scales: space scales ( global, local and regional) and time scales ( things that can happen in few hours, like a big flood, or in many years, like glaciers retreat ). The main challenge is to study what happens with the water physically within these different space and time scales.

**Control4Reuse** - Process Control Technologies for Water Reuse - Eva Thorin (Sweden). This will address the problem of adapting both the quantity and the quality of treated wastewater for non conventional reuse in agriculture. To do so, control theory will be used: models of treatment plants and agronomic models will be coupled in order to provide the users with a simulation platform and optimal control strategies. The main challenge is to provide new technological solutions to minimize external inputs while optimizing water reuse management under both environmental and sanitary constraints.

**IDOUM** - intends to promote low-cost, low-energy, and low chemical usage technologies capable of emerging contaminants removal from contaminated source water. The main challenge is to merge scientific and technological skills from South African, Brazilian, German and French labs to propose hybrid technologies based on bio-augmented constructed wetlands with endophytic microorganisms in combination with tailored nano and micro-structured catalytic materials for heterogeneous Fenton processes.

Progress on water JPI

#### Water JPI international knowledge hub workshop

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As part of the CSA IC4Water, a Water JPI workshop on "Knowledge Hub UN SDGs" was held in Paris on February 7<sup>th</sup>, 2019. Starting from the lessons learnt within the first Water JPI knowledge Hub on Emerging Pollutants and followed by the group designing the upcoming Knowledge Hub of the Water JPI, its topic and composition. There were representatives from other International initiatives who presented experiences from similar initiatives. The workshop facilitated identifying opportunities and existing gaps, taking into account the internationalisation of the Initiative, and highlighted the the importance of the knowledge transfer and the possible implementation models for the maximization of outputs.

Progress on water JPI

#### Submission of the ERA-NET cofund proposal aquatic pollutants in support of the Water JPI, JPI Oceans and JPI AMR

*One of the most serious risks for our water bodies and oceans and consequently human health derives from the occurrence of emerging pollutants and pathogens, especially antimicrobial resistant bacteria, in the environment.*