

Water challenges for a changing world

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EDITORIAL

The Water JPI team will meet in Rome in May 2016 for almost a whole week. In fact, many events are planned from the 16th May, concluding on the 19th May, with the first Water JPI International [Conference](#).

The General Assembly of [WatEUr](#) will take place in the afternoon of Monday 16th May, followed by a meeting of the representatives of the funding agencies involved in the [WaterWorks2015](#) call on the 17th. The kick-off meeting of the 16 projects funded under the 2015 Water JPI Joint Call ([WaterWorks2014](#)) is scheduled for the 18th May.

No doubt that Rome is the right city to host activities and events related to water. Ancient Roman aqueducts, the Tiber river celebrated by famous Latin poets, the old clocks moved by water falling into their mechanisms, dozens of beautiful architectural fountains, but also the simply drinking fountains scattered through the city to give relief to thirsty pilgrims and tourists, testify the central role played by water in Rome's all day life and in its landscape.

We are very pleased to welcome you to the Eternal City and to the upcoming Water JPI Conference organised to present the first key achievements of this wide and long-lasting collaboration initiative. See you soon!



PROGRESS ON WATER JPI ACTIVITIES

Various Water JPI meetings took place between 13 and 15 April 2016 in Málaga, Spain, among them the 8th Governing Board meeting and the Workshop on Good Practices on Funding and Management.

Workshop on Good Practices on Funding and Management



The 1st Workshop on Good Practices was organized on 14th April 2016, back to back with other meetings of the Water JPI. The topic selected for the workshop was "Water RDI Strategy and Funding". The purpose of the workshop was to:

1. Improve the efficiency and effectiveness of the Water JPI community by identifying good national examples of the integration of national and Water JPI strategies.
2. Identify the main concerns and bottlenecks for adapting the national research activities to the needs of the Water JPI Strategic Research and Innovation Agenda (SRIA) and the implementation plan of the Water JPI.
3. Enhance the trust between Water JPI the partners through a mutual learning process.

4. Improve the efficiency of future joint actions.

The workshop was composed of two main sessions on strategy and joint actions respectively, each of them including keynote speakers presenting concrete examples and national cases, a round table of short presentations of national cases and a general open discussion.

The session "Catalysing the development of national strategies to integrate national schemes, joint programming and related initiatives for water RDI funding" featured the national cases of Norway and France, as well as a keynote dedicated to the analysis of the performance of the Water JPI in relation to other JPIs.

The discussion focused on the issues of internal procedures for prioritizing and funding decisions at the national and JPI level, balancing of the national interests and the Water JPI strategy, and valorization of international collaboration for the national RDI systems. The main barriers were identified and concrete examples of actions put in place at national levels to integrate the national and Water JPI strategies, calls and funding presented.

The session on "Lessons learned by funders and performers in the first Water JPI joint actions" featured keynotes on Water JPI Pilot and WaterWorks2014 joint calls.

The participants presented their critical views on the two joint calls, as well as the main difficulties they encountered at the national level regarding the participation in Water JPI joint actions.

The Workshop was organized under the ERA-NET Cofund Action "Water Works 2014-2019 in Support of the Water JPI". Annual Good Practices workshops are foreseen until the end of the action.

Outcomes of the Malaga Governing Board

The 8th Governing Board was held in Malaga (Spain) on 14-15 April 2016. It was organized around Water JPI Strategy and Implementation activities. It integrated two interactive sessions, allowing the participation of all Governing Board members, around: i) the future of the Water JPI and ii) the priorities for the 2017 – 2019 Implementation plan. The implementation issues were discussed through an integrated overview of the different activities performed by the Water JPI as well as the future Implementation Plan which is a roadmap towards implementing the research needs identified on the SRIA 2.0.

The Strategic Research and Innovation Agenda of the Water JPI v2.0 was approved and will be presented during the Water JPI Conference that will take place on 19th May 2016 in Rome (Italy). The Water JPI key achievements (alignment, on the elaboration of a common vision, enlarging the Water JPI partnership, engaging stakeholders, increasing international cooperation, interacting with the European Commission, mapping Water RDI in Europe, funding RDI projects through joint calls and outreach issues) was presented and will be finalized for the upcoming event.

This meeting has also been the occasion of exchanges with the Chair of the Scientific and Technological Board on the STB engagement. Suggestions

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for improving it were discussed and will be implemented in the future when renewing the Advisory Boards.

The GB meeting was held back to back to a workshop on good practices on funding RDI. Actions for overcoming identified difficulties and improving the management of the future Water JPI were discussed during the workshop.

Contribution to next H2020 SC 5 work programme

The Water JPI Task Force on Interaction with Horizon 2020 prepared a Position Paper in response to the EC public consultation on the strategic roadmap for Horizon 2020 Societal Challenge 5 work programme 2018-2020 (deadline: 8th April 2016). In this position paper, the Water JPI, focusing on issues such as the implementation of synergy areas in water RDI, and agenda setting within Horizon 2020. The Position Paper is available [here](#). To continue the discussion with the EC, the Water JPI will be attending the upcoming meeting between the EC, JPIs/ERANets and working group from the Horizon 2020 Societal Challenge 5 Programme Committee in June 2016 to further discuss synergies with Horizon 2020 as well as between initiatives. In addition, the Water JPI submitted a response to the JPI Climate Public Consultation on their Strategic Research Agenda. You can view the submission [here](#).

A guide to implement the Responsible Research and Innovation concept

The Water JPI published its [strategy](#), for communication and dissemination in April 2013. Now this document is completed by this [guide](#) to the implementation of [responsible-research-innovation](#) which aims to improve the societal relevance and involvement of the activities performed by the programme on water challenges. This RRI guide will also contribute to provide an answer to the recommendations of the Expert Group on evaluation of the Joint Programming asking for a better involvement of stakeholders at national level.

Participation in the IncoNet workshop

The Water JPI was invited to participate to the "Workshop for the future of water-related research collaboration between the EU & Central Asia" organised by the FP7 project *IncoNet CA* (<http://inco-ca.net/>) on 11-12 April 2016, in Athens. The workshop managed to bring together scientists as well as policymakers from the EU, Central Asia and beyond with the following objectives: to present the current water-related research activities and potential in Central Asia; to discuss the state of affairs of international and national policies and programmes supporting water related research in Central Asia, including opportunities that the European Research Area can provide; to showcase best practice examples of regional cooperation in the field of water; to provide recommendations for the future of water related research collaboration between the EU and Central Asia in the fields of science, technology and innovation. The Water JPI coordinator presented an example of transnational cooperation, the joint programming initiative.

INTERVIEW WITH ROSINA GIRONES LLOP



Rosina Girones is the coordinator of the Water JPI Pilot Call "METAWATER". Dr. Rosina Girones has worked in the areas of basic and environmental virology, and has published more than 100 scientific publications. Rosina Girones is professor of microbiology at the University of Barcelona and the leader of the laboratory of virus contaminants of water and food (VIRCONT). She is coordinator and professor in different undergraduate and post-graduate courses, and is expert member of the Scientific Panel on Biological Hazards (BIOHAZ) of the European Food Safety Authority and secretary of the HRWM specialist group of IWA.

How diffuse and dangerous can be pollution of water irrigation?

Agricultural water can become contaminated through a variety of ways and can potentially spread bacteria, viruses, and parasites to crops and animals. Nonpoint source pollution is pollution that comes from many diffuse sources. Polluted runoff is created by rainfall or snowmelt moving over and through the ground. The impact of pollution of irrigation water is very important and is mainly related to the microbiological contamination of irrigated vegetables. In the EU, agriculture is one of the three important water using sectors, besides industry and domestic users. In some Member States agricultural water consumption may represent up to 80% of the total water use. An EC Directive on irrigation water does not yet exist despite such waters may have an important impact on human health if the irrigated vegetables and fruits are contaminated with pathogenic microbes, but some European countries have national legislations and guidelines for the use of reclaimed waters.

In the circular economy promoted by EU, water reuse plays a central role especially for irrigation. Which is your opinion on this matter?

The proposed actions related to the circular economy promoted by EU will contribute to a greater recycling and re-use, and will bring benefits for both the environment and the economy. Water recycling and reuse is desirable in general to contribute to the sustainability of resources, in addition is also an urgent need in communities that face limited water supplies. Safety reuse of water can only be guaranteed by a correct evaluation and control of the quality of water when used either for irrigation of fresh fruits and vegetables during crop production, but also during harvesting, and processing, especially for vegetables that are eaten raw.

Which kind of water technologies are recommended to reduce water contamination in agriculture?

It is important to identify the most suitable source of water to be used for irrigation and to control the quality in order to define if a treatment is needed. Reclaimed water must be produced in wastewater treatment plants with efficient tertiary treatments and good quality management. River water will probably require filtration procedures and in many cases also disinfection treatments. Implementation when required of sustainable water treatments, including natural methods or new decentralized water treatment technologies and disinfection if needed will be recommended for irrigation of fresh vegetables eaten raw.

Which main outcomes does the METAWATER consortium expect to achieve with this research?

The overall aim of the project is to develop European scale tools for the rapid evaluation of the role that irrigation water has in the transmission of existing, new and emerging pathogens to the human population. The diverse sources of irrigation water used in the European countries (reclaimed water, superficial water, ground water and distribution water) will be characterized and critical points for the quality of irrigation water and the treatment processes will be analyzed for standard fecal bacteria, new viral indicators and existing, new and emerging water-borne microbiological risks, characterizing the population of human viruses, emerging pathogenic bacteria (including antibiotic-resistant bacteria), protozoa and cyanobacterial toxins.

The project coordinates the work, the objectives and expertise of the teams involved in 7 subprojects distributed in 4 European countries. The new metagenomics techniques that will be applied will provide a better understanding of the complex situation concerning bacterial/viral load in the transmission of microbial infections to the population and may be used to identify unknown risks. The project will identify the different microbiological risks associated to irrigation water in the different European regions with the aim to protect the consumer's health and enable the production of safe food. The final objective is to prevent epidemics and to produce the scientific bases to support the development of European/national regulation for water use for irrigation.

What about communication and dissemination activities to stakeholders and citizens?

It is contemplated in the project the collaboration with regulatory agencies, and irrigation water related companies and control laboratories. In fact

using the new molecular integrated protocols, assays for detection of new pathogens and molecular markers for the implementation of risk assessment studies both in water and food-safety plans will be done within the context of the need for answering questions manifested by stakeholders.

Involved stakeholders are water distribution and sanitation companies, regulatory agencies and control laboratories that are collaborators participating in each subproject. Their interest and participation is the first step for the application of results. The WP 8 in the proposal is focused on the implementation and application of the results including the development of recommendations that will be freely available and distributed through professional associations and technological clusters. Also the evaluation of the relation between the results observed in the project and the Water Framework Directive (2000/60/EC) and derived policies will be discussed with regulatory agencies for considering specific regulations for pathogens and useful microbial indicators in irrigation water. The communication and dissemination strategy is based on scientific and specific meetings and publications as those organized by the IWA, infectious diseases or veterinary medicine conferences and workshops with the presence of stakeholders and regulators and also, the application of systems of science communication and implementation of the scientific results using also new technologies for dissemination.

Which is your opinion on the alignment of research and innovation fostered by the Water JPI at European and international level?

Laboratories in Europe are used now to establish collaborations between different laboratories and countries, most of the important problems and questions are not limited at a national level, and in order to have significant advances it is required to build consortiums with a diversity of expertise. Water JPI is a good initiative, although there are more funds and facilities for the researchers when working in EU-funded research projects, at list in some of the countries.

RESEARCH HIGHLIGHTS

Multi Sensor Fusion for Real-time Monitoring of Waste Water Quality



The increasing worldwide contamination of water sources with over 70,000 known and emerging pollutants from industrial, pharmaceutical, agricultural and natural origins is one of the key environmental problems facing humanity. The pollution of waterways with fertilisers and pesticides has a detrimental impact on water through algal blooms and increased mortality of fish stocks. These contaminants pose a real threat to humans and require continuous monitoring for situation awareness.

The water industry is one of the major industrial sectors in the EU, threatened by erosion of world markets and slowing growth. Major problems affecting water in urban management comprise increased demand or obsolete distribution networks.

Water distribution systems are vulnerable to intentional and inadvertent contamination. Wastewater treatment involves removal of nutrients, such as phosphorous, ammonia and volatile fatty acids before water can be discharged for further use. The measurements of

water contaminants are mostly based on off-line monitoring and the current approaches include optical, acoustic, mechanical, electrical and bio sensors. However, they often suffer from low reliability, sensitivity and accuracy, combined with infrequent measurements and high cost, all of which hinder their industrial application.

The implementation of the European Water Framework Directive has triggered the need for new methods and systems which enable the monitoring of chemical and biological pollutants in water in real time, on the spot. The "Multi Sensor Fusion for Real-time Monitoring of Waste Water Quality" project (Water-Spotcheck), funded by the FP7-PEOPLE-2010-IEF Marie-Curie Action, has pioneered a novel on-line monitoring system with high resolution and repeatability to improve the daily water supply process management. It potentially facilitates the real-time detection of abnormal situations and the implementation of new control strategies. Each sensor provides enhanced sensitivity to a particular water contaminant, and a sensor array option would be a possible choice for the water quality monitoring system with the stringent customer requirements. The outcomes of this interdisciplinary project would serve as a basis for the flexible portable real-time water quality monitoring platform that would potentially improve the safety and quality of water.

The Water-Spotcheck project has successfully achieved its aims at developing a unique real time monitoring sensing platform for the water industry via the accomplishment of its key objectives. The outcomes of the Water-Spotcheck [project](#) were disseminated to the academics, researchers, industries and to the public via meetings, public talks and scientific presentations at international conferences. To date, the project has resulted in publication of 6 book chapters, 17 journal and 21 conference papers, with further 3 journal papers under review and 2 UK patents pending and 2 US patents being filed. [To know more](#)

DROPLETS

Hydralab+ project

The EU funded Hydralab+ network aims at structuring the access to unique and costly hydraulic and ice engineering research infrastructures in the European Research Area. The new phase of the project is especially oriented at climate change impacts and has just launched its new website: www.hydralab.eu The Hydralab+ project provides researchers access to 18 unique experimental facilities in Europe.

FLOOD-UP project

This project aims to promote awareness and public participation regarding the processes and consequences of heavy rains and flooding. It is intended to approach citizenship Earth sciences, in particular those related to meteorology and hydrology, and in turn give tools to share responsibility for improving the prevention and resilience. [To know more](#)

ADNATUR project

This project funded within the programme Life + aims to promote validation, assessment and industrial demonstration of a new innovative and environmentally friendly technology, based on natural products, in primary treatment of wastewaters, at urban and industrial level. The implementation of the new technology at EU level will constitute an economical, technical and environmental improvement, deriving in energy and resources save and no production of wastewater or hazardous chemical waste during the physical-chemical treatment of industrial or urban wastewater. More information is available at the project [website](#).

India-EU water partnership

A joint declaration by the Republic of India and the European Union on an India-EU Water Partnership (IEWP) has been undersigned on 30 March 2016, with the objective to strengthen technological, scientific and management capabilities of India and the EU in the field of water management on the basis of equality, reciprocity and mutual benefit. [To know more](#)

Open access to JRC data

The European Commission Joint Research Center, the department charged with providing scientific expertise to support EU policy development, has opened a new window on a big chunk of its research. JRC made public 490 datasets, which scientists and app developers are free to download and use for their research or business ideas, providing the source is acknowledged. The wide-ranging topics covered by the [Data Catalogue](#) include climate, freshwater resources, alien species, soil and forests.

JRC annual report 2015

This recently published [report](#) presents annual facts and figures and highlights the most significant collaboration agreements summarizing the outcomes of the "Ex-post Evaluation of the JRC's direct actions under the Seventh Framework Programme (2007-2013)".

Proceedings of the EIP Water conferences

Up to now 50 presentations focused on water innovation topics have been published on the EIP Water [slideshare](#) account. They derived mainly from three EIP conferences and present key issues connected with the area.

A patent to reduce water treatment costs

ENEA, the Italian national agency for new technologies, energy and sustainable economic development has presented an innovative technology for the automated management of wastewater treatment plants, allowing to reduce overall energy consumption by up to 36% and management costs by 15%, besides guaranteeing improved efficiency of the biological processes for the removal of pollutants. [To know more](#)

New tools to protect drinking water

Researchers in Germany and France developed tools for water utilities that enable them to respond quickly to pathogens or toxic substances in the drinking water supply. The partners are working on a comprehensive monitoring, early warning and emergency management system that allows utilities to rapidly initiate countermeasures in an emergency situation. [To know more](#)

Action platform on source to sea management

This multi-stakeholder initiative was launched in September 2014 to connect and engage in collaborative projects, promote best practices and take collaborative action to improve the management of land, freshwater, coastal and marine linkages according to the [Manila](#) declaration. [To know more](#)

OPPORTUNITIES

EEA Call for experts for the scientific committee

The European Environmental Agency has launched a call to appoint Scientific Committee members with expertise in one of the following areas as identified by the EEA Management Board: socio-technical systems, socio-ecological systems, sustainability, and data. Interested candidates are invited to look at the full vacancy notice published on the EEA [website](#). Candidates must be nationals of one of the 33 EEA member countries. **Deadline for applications: Friday 10 June 2016, 12.00 CET.**

Open calls of the Science with and for Society programme

Twelve calls of the Horizon 2020 Programme "Science with and for Society" are open now for submission of proposals promoting open science, open research organizations and the implementation of the Responsible Research and Innovation concept in the European Research Area. Deadline is fixed on 30 August 2016. [To know more](#)

Call of the Central Europe Programme

This [second call](#) intends to support the best transnational ideas that address challenges shared across central Europe - related to either [innovation](#), [CO2 reduction](#), [natural and cultural resources](#) or [transport](#). Project partnerships can be formed by both public and private organisations. Full applications have to be submitted in a one-step procedure. The [ERDF](#) budget available for transnational projects will be indicatively around 90 million EUR. The call will close on 23 June 2016.

European Data Portal

The re-use of Open Data can generate diverse benefits, ranging from increased performance at the public administration level and economic growth in the private sector, to the improvement of the social welfare. According to this study on [Creating Value through Open Data](#), the "direct market size of Open Data is 55,3 bn EUR for 2016 and expected to grow by 36,9% by 2020 in the EU 28+". In this context, the [European Data Portal](#), which is developed by the European Commission harvests the metadata of Public Sector Information, available on public, national, regional and local data portals across European countries, without excluding certain datasets. With this specifically designed [survey](#), to gather information on companies that create products and/or services by re-using Open Data, the European Data Portal team wishes to collect examples of Open Data re-use with the aim to further promote its benefits. The examples that will be provided, should illustrate the economic impact of re-using Open Data for all company types, including start-ups, nonprofit organizations, SMEs and even multibillion companies.

Emerging Water Professionals Program

The Emerging Water Professionals Program (EWPP) fosters education and innovation in water management by supporting the professional and personal development of future water leaders. Launched by the International Rivers Foundation [IRF](#) in 2015, the EWPP is open to emerging water professionals, including postgraduate students and early career professionals. Participants from any related discipline are welcome including: science, policy, planning, community development, business, governance, aid, development. [To know more](#)

UPCOMING EVENTS

GEO workshop on Earth observation



The 10th GEO European projects workshop will take place on 31 May - 2 June 2016 in Berlin. The event is organised by the European Commission, the Federal Ministry of Transport and Digital Infrastructure of Germany and the Museum für Naturkunde - Leibniz Institute for Evolution and Biodiversity Science. [To know more](#)



SusChem Stakeholder - Sustainable Chemistry Innovation for Competitiveness

This event will take place on **16 June 2016** at the Bloom Hotel in Brussels, Belgium and will be also focused on water. The conference programme is available [here](#).



ESPON Seminar-Territory matters: "Keeping Europe and its regions competitive"

The territorial dimension of the European regional competitiveness and the use of territorial evidence in relation to policy development will be the main focus of this event organized by ESPON 2020 in cooperation with the [Dutch Presidency of the Council of the EU](#) in Amsterdam on 16-17 June 2016. Among the key themes to be discussed the impact of EU policy on national spatial planning, the Urban Agenda and the ESPON and the INSPIRE Directive. [To know more](#)



H2020 International Circular Economy, Resource Efficiency and Eco-Innovation

This brokerage event will be held in Liverpool on June 22 during the International Festival for Business 2016 (IFB 2016) which is considered to be a real global marketplace for creating connections. Focusing on the opportunities within Horizon 2020 for businesses making the transition to a circular economy and becoming more resource efficient this event is organized by the Enterprise Europe Network (EEN) together with the Knowledge Transfer Network (KTN) and Innovate UK. The main objective is to support organizations to access Horizon 2020 funding for circular economy related calls in 2016-17 by developing innovative R&D projects. [To know more](#)



Water Innovation Europe 2016

The 2016 edition of the conference "Water Innovation Europe" dedicated to the topic '*Water Smart: European Solutions for a smart water society*' will be held in Brussels on 21-23 June 2016. This event aims to bring to light clever solutions on **how to face the water-related global challenges and lay the foundations for 'Water-Smart Societies'**. The third edition of the prestigious *WssTP SME Innovation Awards* will also take place during the first day of the event, on 22 June 2016. [To know more](#)



Industrial Technologies 2016 – Creating a Smart Europe

It is a three day conference in the field of new production technologies, materials, nanotechnology, biotechnology and digitalization in Europe, an associated [event](#) of the Netherlands Presidency of the Council of the European Union in the first half of 2016. It will bring together research, industry, education, finance and policy, representatives from manufacturing, process industry and technology domains from all over Europe to identify priorities that are crucial to strengthen the European industrial innovation ecosystem.



NOVATECH LYON 2016

NOVATECH promotes strategies and solutions for integrated and sustainable water management in the city, with a focus on stormwater management. The ninth international conference Novatech will be held in Lyon (France) on 28 June - 1 July and will consist of plenary conferences, Novatech awards to innovative urban planning projects in the field of urban water management, workshops and tours. [To Know more](#)



SC2 Info Week

Between 27 and 29 June 2016, the Research Executive Agency (REA) is co-organising an *Info Week* in Brussels for the 2017 calls for proposals of the [Societal Challenge 2](#) (SC2) on '*Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the Bio-economy*'. This *Info Week* combines a dissemination event for the results of projects funded under SC2 with an Info Day and a brokerage event for the 2017 calls for proposals. [To know more](#)



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