



MILANO 2015

The Water JPI

Joint Programming Initiative
Water Challenges for a Changing World



MILANO 2015

17 June 2015



MILANO 2015

Agenda – 17 June 2015

- Introduction – Maria UCCELLATORE, Italian Ministry for University, Education and Research
- The Strategic Research and Innovation Agenda – Dominique DARMENDRAIL, Water JPI Coordinator
- Roundtable on Drinkable water and water-food nexus
- The 7 pilot call funded projects on water quality – Lourdes ARMESTO LOPEZ, MINECO
- Next steps in the implementation of the Water JPI – Alice WEMAERE, Irish Environmental Protection Agency





“THE WATER JPI ON WATER CHALLENGES”

at

EXPO MILANO 2015

Maria Uccellatore

Head Office VI - Dissemination of Scientific Culture

DGCPVR - MIUR



Milan 17th June 2015



Welcome to EXPO of Milan 2015, welcome to Water JPI Event!

By Maria Uccellatore, **Head Office VI for Dissemination of Scientific Culture** of Italian Ministry of Education, University and Research (MIUR)

Participation in **Governing Boards of many European Joint Programme Initiatives (JPIs)**, like Water JPI, as representative of MIUR.

MIUR is the **main Italian Actor** having the **coordination role in JPIs**. Currently MIUR participates in **10 JPIs**



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What is JPI?

It is an **intergovernmental instrument born in 2008** on input of European Commission to gather resources, in Europe and beyond Europe, to:

- **Strengthen scientific and technological bases, competitiveness and capacity**
- **Promote and foster research and innovation** to jointly face the relevant societal challenges
- **Optimize the impact** of European joint programming
- **Avoiding duplicates**

In this landscape, the **EXPO 2015** is an **extraordinary opportunity for the «Joint Programming Initiative on water challenges» (Water JPI)** to raise awareness on the essential role of water in our every day's life.



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What is Water JPI?

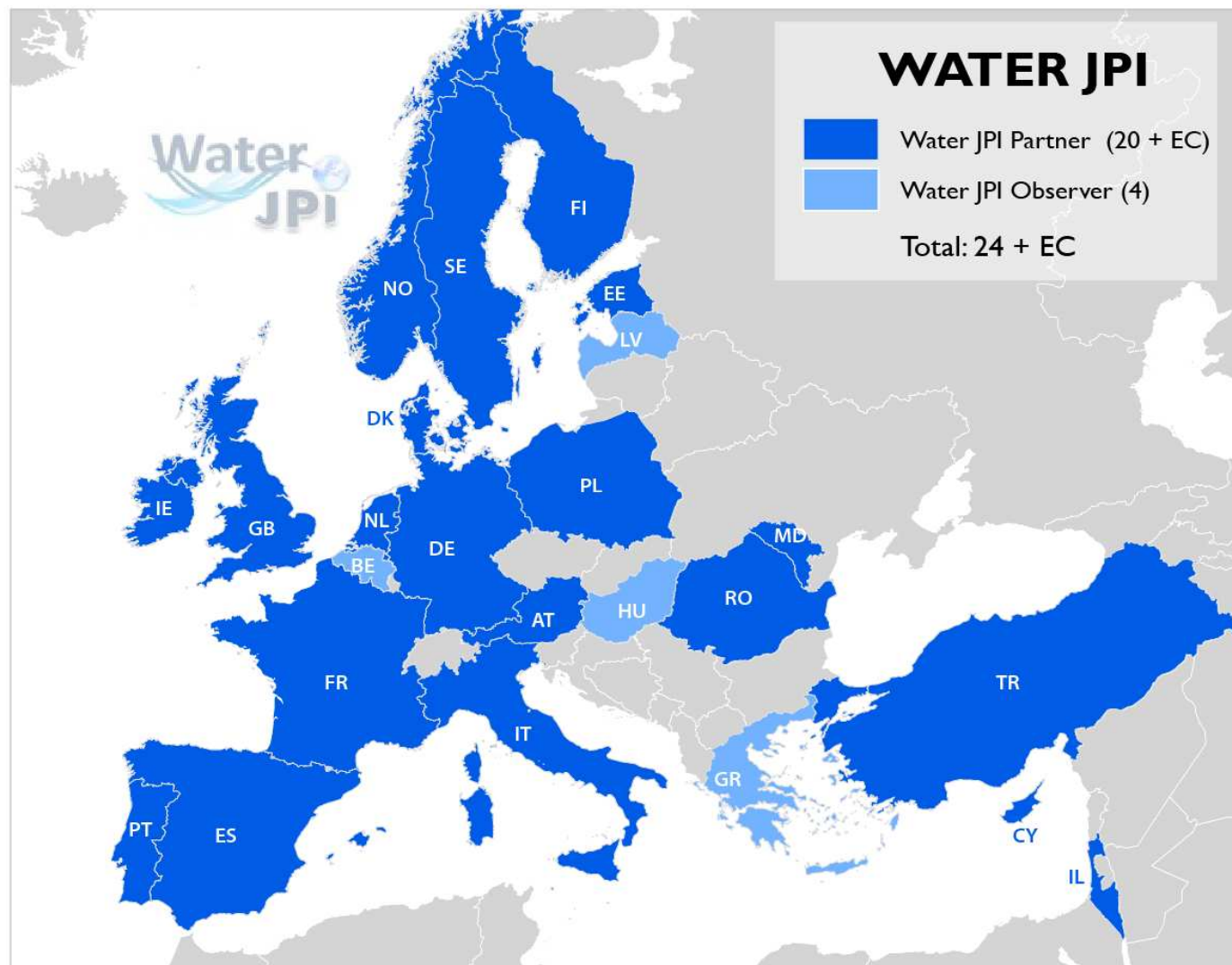
The **Joint Programming Initiative “Water challenges for a changing world”** is a relevant programme in this EU strategy for research and innovation, supported by the **European Commission, 20 Members** and by **4 Observers from EU Member States and Associated Countries** to the European Union in the developing of the EU research and innovation programme Horizon 2020.

It was approved by the Competitiveness Council **6 December 2011** with the aim of **reducing the fragmentation of the efforts made by the Member States** of the European Union **in the protection and management of water resources**.

Water JPI **responds to the challenge of "delivering sustainable water systems for a sustainable economy in and out of Europe."**



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Water JPI
partners
currently
represent **88 %**
of the European
National Public
RDI investment
on water.



Objectives of Water JPI

There is **great concern** about the availability of water in the future:

- **The world population has tripled** over the last century and is expected to reach 9 billions by 2050.
- **Only 0.7% of the global water resource is readily available** as freshwater, and it is very unevenly distributed across the planet
- **780 million people still lack access to safe water** and 2.5 billion people are without adequate sanitation.



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Objectives of Water JPI

Main aims:

- strengthen **European leadership and competitiveness in the field of water** whilst **protecting water resources and achieving sustainable water systems** for the citizens in Europe and abroad.
- **achieve the alignment** of the national agendas and related programmes in the field of water research, innovation and development, **thus jointly contributing to the European Research Area**



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Water JPI and EXPO 2015

The Water JPI team has organized this event at EXPO 2015 because water **is essential to the production of food and fundamental for drinking and sanitation**. Access to sufficient, safe and affordable water is considered a human right.

Lack of safe drinking water and sanitation impact negatively on access to proper nutrition and food security because healthy nutrition is not possible without enough water of good quality able to ensure the hygiene and the irrigation of fields.



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What we will do together today

- **Activities performed by Water JPI will be presented** with special focus on the **Strategic Research and Innovation Agenda (SRIA)** and the **joint calls** launched to fund innovative and collaborative projects on this issue
- **Round table animated by water experts and representatives of different water** related private and public sectors will focus on the water-food nexus and propose solutions



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Thank you for the kind attention

Enjoy this Water JPI event and the EXPO 2015!

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Tel. +3906-58497760



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The Strategic Research and Innovation Agenda (SRIA)

Dominique
DARMENDRAIL

Water JPI Coordinator

Main Objectives of Water JPI and Activities to Realise

OBJECTIVES

Involving water end-users for effective RDI results uptake

Reaching effective, sustainable coordination of European water RDI

Harmonising National water RDI agendas in Partner Countries.

Supporting European leadership in science and technology.

TOOLS

Joint Call Management

Mapping RDI activities (Questionnaire, Interview, Desk Research)

Alignment of Research Agendas (SRIA Document and Implementation Plan)

International Cooperation (MoUs, Call Partnerships...)

What is a SRIA?

SRIA stands for

«Strategic Research and Innovation Agenda»

It is a strategic document that lays out and prioritises Research, Development and Innovation (**RDI**) **needs**

The SRIA is meant to guide future European RDI policy directions (e.g. Horizon 2020's work programmes)

SRIA process

What?

Definition of the
Water JPI SRIA scope

Framework and
context analysis

Critical analysis

Outcome

**Water JPI SRIA
themes and
subthemes**

**Water RDI needs
and objectives for
each theme and
subtheme**

**Water RDI
priorities**

How?

**Internal
Discussion
on the
« vision »**

Water Challenges for a Changing World
Joint Programming Initiative



Vision Document

April 20th, 2011

**Extensive review of
information sources**



**Public consultations
Workshops**



When?



Month 1-3

Month 3-25

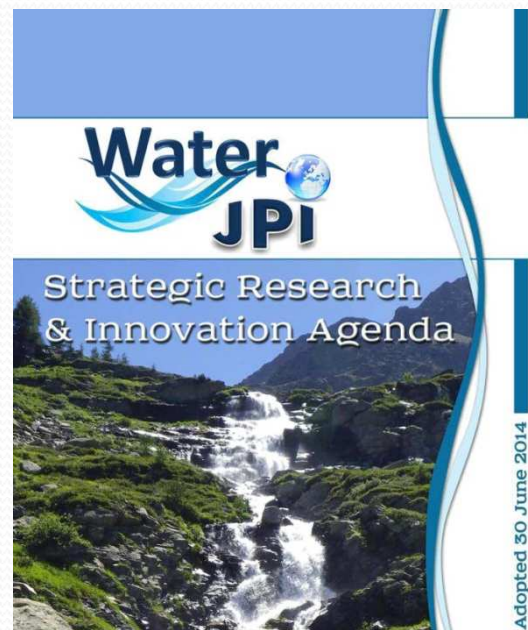
**PCI: Month 15; PC2: Month
28
WK1: Month 15; WK2:
Month 34**

Water JPI SRIAs

- Within the framework of the WatEUr Project, two versions already available and one in the pipeline



 **SRIA 0.5: May 2013**



SRIA 1.0: June 2014

**SRIA 2.0:
due June 2016**



5 themes

Maintaining ecosystem sustainability



Developing safe water systems for the citizens



Promoting competitiveness in the water industry



Implementing a water-wise bioeconomy



Closing the water cycle gap



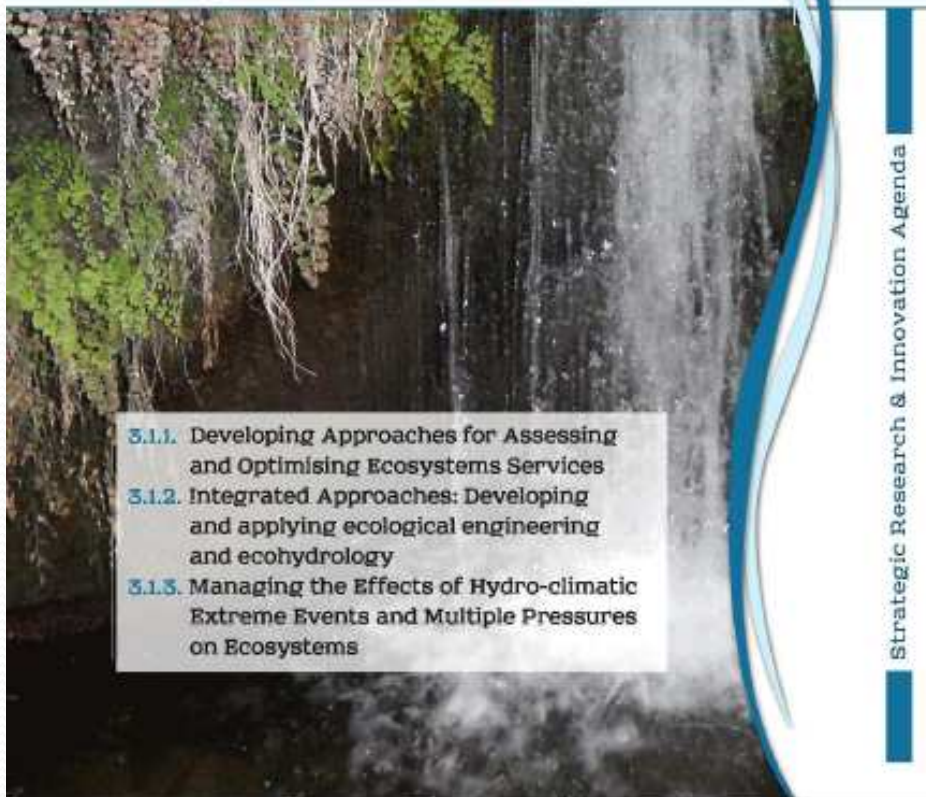
For each theme, analysis of socioeconomic, environmental and policy impact

Elaboration of SRIA :

5 Themes and 11 Sub-themes (V0.5 => V 1.0)



3.1. Maintaining Ecosystem Sustainability



- 3.1.1. Developing Approaches for Assessing and Optimising Ecosystems Services
- 3.1.2. Integrated Approaches: Developing and applying ecological engineering and ecohydrology
- 3.1.3. Managing the Effects of Hydro-climatic Extreme Events and Multiple Pressures on Ecosystems

Strategic Research & Innovation Agenda

3.1.3 Managing the Effects of Hydro-climatic Extreme Events and Multiple Pressures on Ecosystems

Integrated systems for collecting, analysing, interpreting, and communicating data can be used to make decisions early enough to protect public health and the environment from the effects of extreme weather events, and to minimise unnecessary concerns and inconveniences to the population. The primary objectives of forecasting tools (including EWS) are to improve prediction of catastrophic events (floods, droughts) and to minimise the impacts on human lives, natural ecosystems, cultural heritage and food cycles.

Currently Identified Needs

RDI needs and related objectives	Time frame
1.3.1. Setting the causes of drought/scarcity; predicting drought events and water scarcity <ul style="list-style-type: none">- Diagnosing the causes of water scarcity in Europe, and forecasting the incidence of drought events under climate change scenarios. Studies at the regional scale will be favoured.- Developing management strategies focusing on cost-benefit analyses of agricultural evapotranspiration vs. water conservation for alternative hydrological uses.	Short
1.3.2. Developing innovative (or improved) tools for the protection and prevention of hydro-climatic extreme events <ul style="list-style-type: none">- Developing innovative tools (such as EWS) for prevention and protection of extreme events, including sensor technology and monitoring networks.- Improving EWS for the forecasting of flooding and the assessment of associated risks.	Short





3.2. Developing Sustainable Water Systems



3.2.1. Emerging Pollutants: effects on nature and behaviour and treatment
3.2.2. Minimising Risks Associated with Water Infrastructures and Natural Hazards



3.2.2 Minimising Risks Associated with Water Infrastructures and Natural Hazards

Current global changes (such as climate change and urban sprawl) demand innovative practices to minimise the risks associated with: (i) water distribution and storage facilities in urban areas; and (ii) natural hazards (floods and water scarcity as well as associated risks for citizens' life and assets). Protecting the capacity of urban water networks to deliver water to citizens with target quality standards is a major goal for both European and non-European countries. Urban water networks concentrate large public investments, guarantee the right to water access and represent a very important niche for multinational European companies of all sizes. Research can protect citizens, investments and businesses by supporting innovative management and decision-making. Urban water natural hazards can be exemplified by urban floods and water scarcity. Their devastating power will be limited through multidisciplinary research exploring the areas of risk prevention and management. A variety of scientific and technological areas will be explored to put research results at the service of citizens' life and assets. The two aspects of this subtheme (infrastructure and natural hazards) may be combined in specific topics. For instance, the performance of storm water retention ponds could be improved, including the management of contaminants, and overflows in advanced wastewater treatment facilities could be managed when affected by floods.

Currently Identified Needs

RDI needs and related objectives	Time frame
<p>2.2.1. Exploiting ageing urban water systems for dependable and cost-effective service</p> <p>Developing methodologies and technologies for the effective monitoring and control of urban water networks and storm water systems.</p> <p>Enhancing the resilience of urban water systems (i.e. pipeline networks, drinking-water reservoirs, pumping stations and large water treatment plants).</p> <p>Improving the efficient use of state-of-the-art monitoring and control systems.</p> <p>Developing decision-support systems (DSS) for long-term rehabilitation decisions based on the time evolution of system conditions.</p> <p>Improving data-management routines. Link with 3.1.1.</p>	Long
<p>2.2.2. Progressing towards urban flood-proof cities. Link with 1.3.2 and 1.3.3.</p> <p>Developing and setting up technological and managerial solutions to urban floods.</p> <p>Producing integrated systems for the prediction and risk management of urban floods (overflows in advanced wastewater treatment facilities, urban hydrology, surrounding river flow, hydrodynamics, internet of things, drainage design, social sciences and climate change analysis).</p> <p>Developing a smart city approach to integrate sensors and public information services designed for all event phases. Link with 3.1.1.</p>	Short

Current version...

47 RDI needs

51 RDI objectives TH1

35 RDI objectives TH2

53 RDI objectives TH3

23 RDI objectives TH4

48 RDI objectives TH5



Consultative workshop on SRIA 1.0

Lyon (France), 3-4 April 2014

- Objective : to present the critical analysis (from various information sources) and feed discussions on SRIA 1.0
 - Any other gap? any cross-cutting issues?
 - Priorities for the short/ medium and long term
- Members of the Advisory Boards, external experts and stakeholders (chosen by the partners countries)

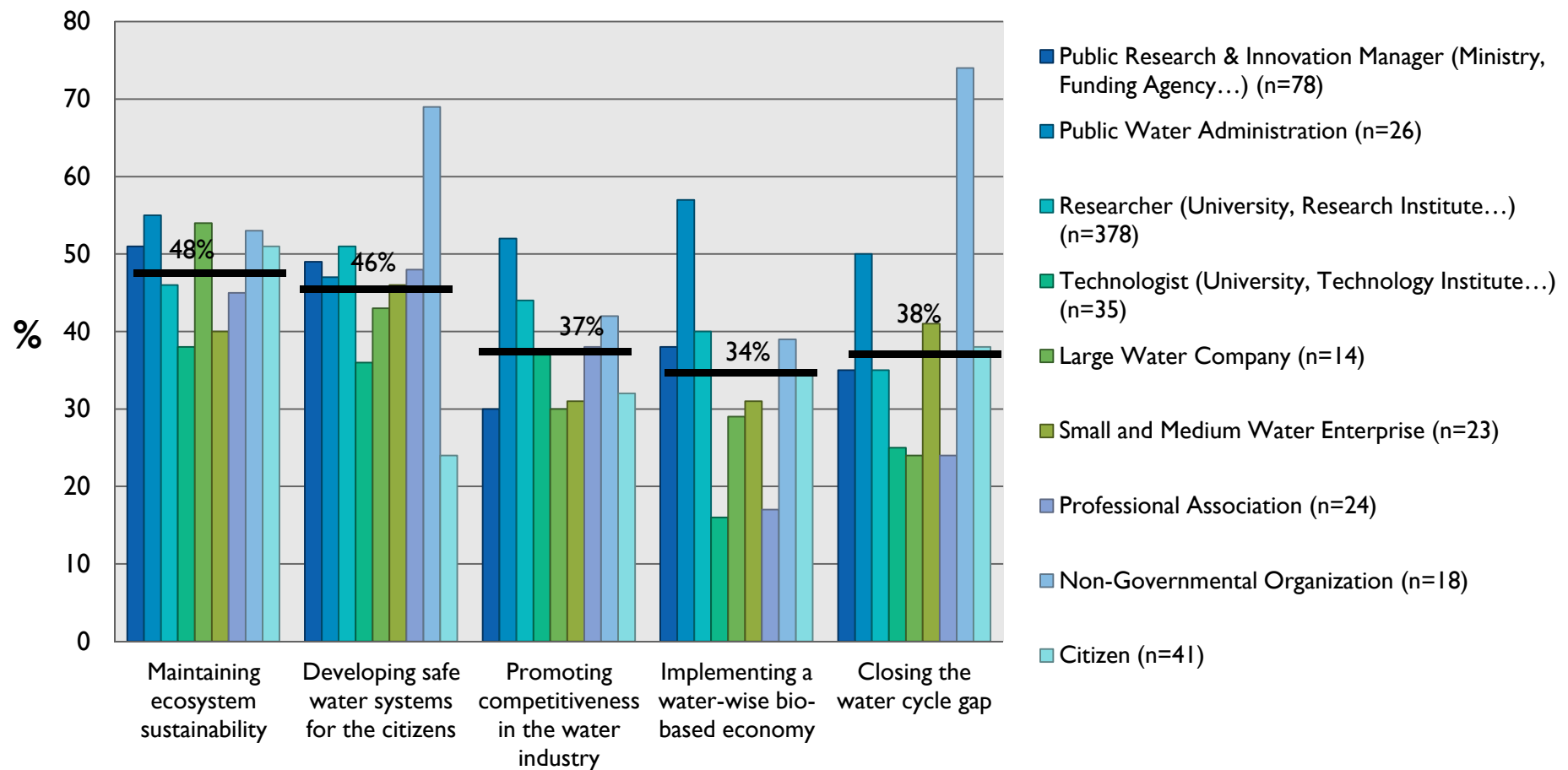
	STB & SAG	Experts	Total
Confirmed	20	9	29 (+7 VVP3)



First Public Consultation - 2014

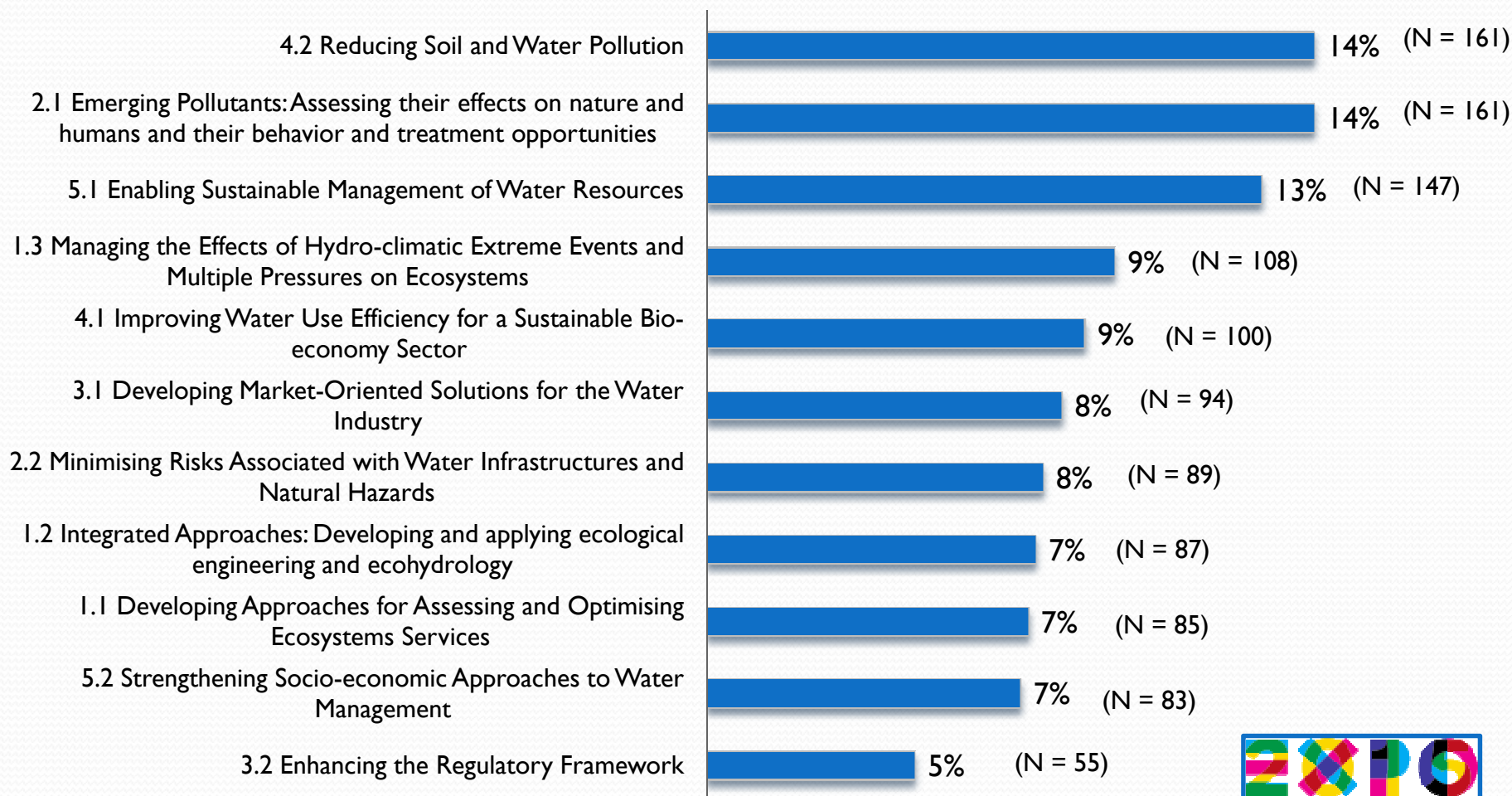
SRIA THEMES / High importance by occupation

High importance by occupation



Second Public Consultation May 2015

Three most important sub-themes of the SRIA (N = 1170)



Where are we now in the preparation of SRIA 2.0?

- Improvement of other chapters of the SRIA
- Organisation of the second consultative workshop
 - Date: 8th - 9th October 2015
 - Venue: BRGM Scientific Centre, Orléans (France)
 - Objective of the workshop
 - To feed discussions on SRIA 2.0 on new items, to improve RDI prioritisation
 - Participants (40-50 max)
 - ABs, external experts, industries, water utilities/ users, clusters, EU commission, NGOs, European Environmental Bureau, European Committee for Standardisation

Thank you for your attention

http://www.waterjpi.eu/images/SRIA/WATER%20JPI%20%20SRIA%201.0_2014.pdf



Roundtable on drinkable water and water – food nexus



ROUNDTABLE moderated by Rossella MONTI, fondazione A.Volta

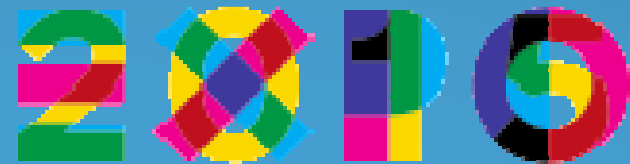
- **Enrique PLAYAN**, Research Professor at CSIC, former Water JPI coordinator
- **Davide VIAGGI**, associated Professor at Bologna University, EIP Water / action group WIRE
- **Michele FALCONE**, Director General of CAP Holding Spa
- **Luisa PRISTA**, Head of the Environmental Technologies Unit, DG Research and Innovation, European Commission
- **Xiaoming LI**, Professor at Hunan University, EIP Water Steering group
- **Stefano CETTI**, Director General of MM SpA



Water JPI Pilot Call: Presentation of the seven funded projects



Lourdes Armesto López
MINECO



MILANO 2015



3.2. Developing Safe Water Systems for the Citizens

- 3.2.1. Emerging Pollutants: Assessing their effects on nature and humans and their behaviour and treatment opportunities
- 3.2.2. Minimising Risks Associated with Water Infrastructures and Natural Hazards

Strategic Re

For each sub theme,
RDI needs and specific
objectives:



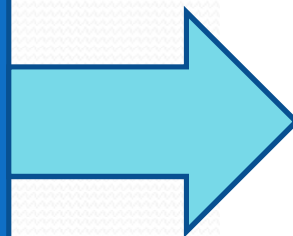
3.2.2 Minimising Risks Associated with Water Infrastructures and Natural Hazards

Current global changes (such as climate change and urban sprawl) demand innovative practices to minimise the risks associated with: (i) water distribution and storage facilities in urban areas; and (ii) natural hazards (floods and water scarcity as well as associated risks for citizens' life and assets). Protecting the capacity of urban water networks to deliver water to citizens with target quality standards is a major goal for both European and non-European countries. Urban water networks concentrate large public investments, guarantee the right to water access and represent a very important niche for multinational European companies of all sizes. Research can protect citizens, investments and businesses by supporting innovative management and decision making. Urban water natural hazards can be exemplified by urban floods and water scarcity. Their devastating power will be limited through multidisciplinary research exploring the areas of risk prevention and management. A variety of scientific and technological areas will be explored to put research results at the service of citizens' life and assets. The two aspects of this subtheme (infrastructure and natural hazards) may be combined in specific topics. For instance, the performance of storm water retention ponds could be improved, including the management of contaminants, and overflows in advanced wastewater treatment facilities could be managed when affected by floods.

Currently Identified Needs

RDI needs and related objectives	Time frame
2.2.1. Exploiting ageing urban water systems for dependable and cost-effective service Developing methodologies and technologies for the effective monitoring and control of urban water networks and storm water systems. Enhancing the resilience of urban water systems (i.e. pipeline networks, drinking-water reservoirs, pumping stations and large water treatment plants). Improving the efficient use of state-of-the-art monitoring and control systems. Developing decision-support systems (DSS) for long-term rehabilitation decisions based on the time evolution of system conditions. Improving data-management routines. Link with 3.1.1.	Long
2.2.2. Progressing towards urban flood-proof cities. Link with 1.3.2 and 1.3.3. Developing and setting up technological and managerial solutions to urban floods. Producing integrated systems for the prediction and risk management of urban floods (overflows in advanced wastewater treatment facilities, urban hydrology, surrounding river flow, hydrodynamics, internet of things, drainage design, social sciences and climate change analysis). Developing a smart city approach to integrate sensors and public information services designed for all event phases. Link with 3.1.1.	Short

**Emerging Pollutants:
Assessing their effects on
nature and humans and
their behaviour and
treatment opportunities**



**"Emerging water contaminants -
anthropogenic pollutants and
pathogens"**

Currently Identified Needs

RDI needs and related objectives	Time frame
2.1.1. Developing analytical techniques for groups of substances Improving methodologies for the detection, quantification and monitoring of emerging substances, DBPs, their metabolites and degradation products in different compartments of the environment. The development of real-time, warning systems and online technologies is of special interest. Developing new approaches to analyse the combined effects of chemicals (i.e., chemical mixtures), integrative bio-assessment tools and new biomarkers and bioassays.	Short
2.1.2. Controlling disinfection by-products, emerging pollutants and pathogens, including their environmental effects Understanding and predicting the environmental behaviour of emerging pollutants in surface water, sediments, soil and groundwater. Assessing the transfer time of different pollutants as well as understanding the processes during transfer. Expanding the knowledge base on antibiotic resistance in aquatic environments: developing comparable and validated data sets on the prevalence and spread of major bacteria in the aquatic environment with clinically and epidemiologically relevant antimicrobial resistance in Europe. Developing integrated risk-assessment procedures, including the effect of long-term exposure, for antibiotics and other emerging pollutants acting at sub-lethal levels. Modelling transport, growth and degradation of emerging pollutants and pathogens. Assessing and implementing management measures and technologies to reduce the impact of emerging pollutants and pathogens on water quality. Specific focus on wastewater reuse is required. Developing a better understanding of the extent to which emerging pollutants are removed or modified by water treatment plants/natural processes in soil and water. Understanding the factors that control the bioavailability and fate of emerging pollutants in organisms. Characterising the effects of emerging pollutants and their metabolites, on human health and on ecosystems. Assessing both the occurrence and toxicity of regulated and emerging disinfection by-products. Developing strategies to reduce emerging pollutants at source (e.g. airports, golf courses, rail tracks, highways, hotels, pharmaceutical sources). Improving technologies for the specific removal of natural organic matter from surface water so as to avoid the formation of DBPs during the chemical disinfection process (with chlorine, chloramine, and ozone). Link with 3.1.2.	Short

Water JPI Pilot Call

11 funding organisations from **10 countries:**

- RPF (Cyprus);
- DSF (Denmark);
- AKA (Finland);
- ONEMA (France);
- BMBF (Germany);
- EPA (Ireland);
- MIUR (Italy);
- RCN (Norway);
- FCT (Portugal);
- MINECO and CDTI (Spain)



Water JPI Public funding for transnational collaborative research
projects: 9 M €

Call Objectives

- ✓ to enable multi-national, collaborative research, development and innovation projects addressing questions relating to the water challenges faced by the European society
- ✓ to promote multi-disciplinary work
- ✓ to encourage proposals with fundamental and/or applied approaches
- ✓ to stimulate mobility of researchers within the Consortium

Tackling societal challenges always requires a multidisciplinary approach. Therefore, all proposals should emphasize participation of stakeholders, and dissemination and exploitation of results.

Call Themes

Theme 1: Identification and prevention of emerging freshwater contaminants

Theme 2: Control, mitigation and methods for treatment and removal

Theme 3: Impact on ecosystems services and human health

Call Statistics II: Funding organizations (eligible applicants)

Total amount of applications 595 (366 eligible), total applied funding 117 M € (all).

	Number of applications	Funded applications	Total applied sum	Total funded sum
BMBF (Germany)	79	13	25 100 753	3 080 000
MINECO (Spain)	74	9	12 276 227	1 399 000
MIUR (Italy)	45	4	5 627 509	299 641
FCT (Portugal)	37	3	3 750 513	299 544
DSF (Denmark)	26	1	6 885 642	481 952
AKA (Finland)	26	2	6 869 052	517 902
ONEMA (France)	19	4	5 453 242	600 432
RCN (Norway)	18	3	3 317 448	591 700
RPF (Cyprus)	16	2	1 398 910	199 998
EPA (Ireland)	14	2	1 326 946	263 898
CDTI (Spain)	12	1	2 791 480	141 795

Call Decisions

64 consortium proposals were evaluated and ranked during March – May 2014.

As a result of work done by Evaluation Committee (EC), CSC gave recommendation to fund 7 Water JPI Pilot Call Consortia (including 44 subprojects):

7 Consortia (53 partners of whom 44 was eligible)

- ✓ Eligible partners from all 10 countries (all 11 funding organisations involved)
- ✓ Coordinators from DE, FR, ES, PT
- ✓ 3 female and 4 male coordinators
- ✓ 13 female (30 %) and 31 male partners (70 %)

Call Consortiums - FRAME

A novel Framework to Assess and manage
contaminants of Emerging concern in
indirect potable reuse



Coordinator: Thomas Ternes (Germany)

Participating countries: France, Italy, Norway



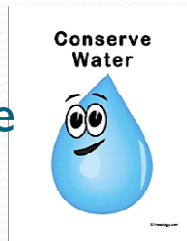
Objectives - FRAME

Development of an evaluation scheme for INPR to provide national & EU authorities with a reliable decision support tool for future implementations

Theme 1: Identification and prevention of emerging freshwater contaminants

Theme 2: Control, mitigation and methods for treatment and removal

Water Reuse



Water Quality



Attenuation



Mitigation





Consortiums - METAWATER

New METAgenomics and molecular based tools for European scale identification and control of emergent microbial contaminants in irrigation WATER



Coordinator: Rosina Girones (Spain)

Participating countries: Cyprus, Denmark, Germany



Objectives: METAWATER

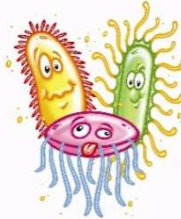
The final objective is to prevent epidemics and to produce the scientific bases to support the development of European/national regulation for water use for irrigation.

Theme I: Identification and prevention of emerging freshwater contaminants

Irrigation



Pathogens



Antibiotic resistance



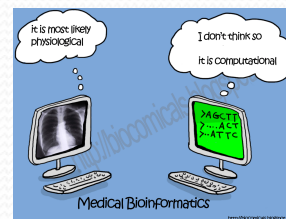
Regulation



Water use

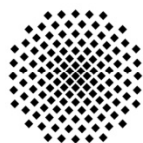


Bioinformatics



Call Consortiums - MOTREM

Integrated processes for MOnitoring and
Treatment of Emerging contaminants for water
reuse



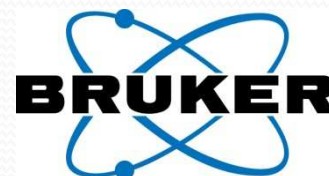
University of Stuttgart
Germany



UNIVERSITY OF HELSINKI



UNIVERSITA
DEGLI STUDI
DI TORINO



Coordinator: Javier Marugan (Spain)



Participating countries: Finland, France, Germany, Italy

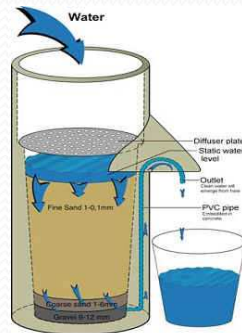
Objectives - MOTREM

- **Develop new processes or modifications of the current biological and disinfection technologies in WWTPs by advanced oxidation and biooxidation processes to achieve the removal of ECs before water reuse or the discharge of the effluents to the environment.**
- **Develop new technologies for the monitoring of the wastewater treatment plant operation regarding the removal of ECs, including analytical procedures and ecotoxicology assessment.**
- **Bring together the technologies developed in steps a) and b) to be tested in an urban wastewater treatment plant.**

Theme 1: Identification and prevention of emerging freshwater contaminants

Theme 2: Control, mitigation and methods for treatment and removal

Biotreatment



Water reuse



Call Consortiums - PERSIST

Persistence and fate of emerging contaminants
and multi-resistant bacteria in a continuum of
surface water groundwater from the laboratory
scale to the regional scale



HelmholtzZentrum münchen
Deutsches Forschungszentrum für Gesundheit und Umwelt



Coordinator: Corinne Le Gal La Salle (France)

Participating countries: Germany, Spain

Call Consortiums - PERSIST

Gain fundamental information on the behavior of EOCs, Targeting pharmaceuticals and resistant microbial communities In both surface water and groundwater

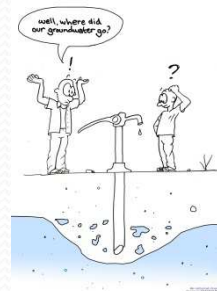
Theme 1: Identification and prevention of emerging freshwater contaminants

Theme 3: Impact on ecosystems services and human health

Surface water



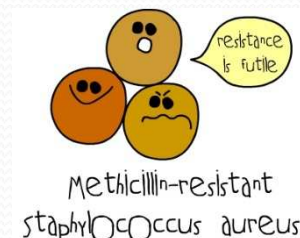
Groundwater



Mathematical Modelling

$$\begin{aligned} \dot{\psi}_{ss} &= \alpha_1 \cdot d_1 \left[C_s \cdot (1 - \psi_{ss}) + C_{ss} \cdot \psi_{ss} + C_{ss} \cdot \psi_{ss} \right] + U_s \cdot \cos(\alpha_1) - \Delta U_{ss}; \\ \dot{\psi}_{ss} &= \alpha_2 \cdot d_2 \left[C_s \cdot \psi_{ss} + (C_{ss} - 1) \cdot \psi_{ss} + C_{ss} \cdot \psi_{ss} \right] - \phi_1 \cdot \psi_{ss} \cdot P; \\ \dot{\psi}_{ss} &= \alpha_3 \cdot d_3 \left[C_s \cdot \psi_{ss} + C_{ss} \cdot \psi_{ss} + (C_{ss} - 1) \cdot \psi_{ss} \right] - \phi_1 \cdot \psi_{ss} \cdot P; \\ \dot{\psi}_{ss} &= \alpha_4 \cdot d_4 \left[C_s \cdot (1 - \psi_{ss}) + C_{ss} \cdot \psi_{ss} + C_{ss} \cdot \psi_{ss} \right] + U_s \cdot \sin(\alpha_1) - \Delta U_{ss}; \\ \dot{\psi}_{ss} &= \alpha_5 \cdot d_5 \left[C_s \cdot \psi_{ss} + (C_{ss} - 1) \cdot \psi_{ss} + C_{ss} \cdot \psi_{ss} \right] - \phi_1 \cdot \psi_{ss} \cdot P; \\ \dot{\psi}_{ss} &= \alpha_6 \cdot d_6 \left[C_s \cdot \psi_{ss} + C_{ss} \cdot \psi_{ss} + (C_{ss} - 1) \cdot \psi_{ss} \right] - \phi_1 \cdot \psi_{ss} \cdot P; \\ I_{ss} \phi_1 + \beta_1 (\phi_1 - \phi_2) + \frac{1}{\epsilon_{12}} (\phi_1 - \phi_2) &= M_1; \\ I_{ss} \phi_2 - \beta_2 (\phi_1 - \phi_2) - \frac{1}{\epsilon_{12}} (\phi_1 - \phi_2) &= -M_1 + \beta_2 \cdot \phi_1; \\ M_1 &= \frac{3\alpha_1 P}{2X_1} \left[\psi_{ss} (C_s \psi_{ss} + C_{ss} \psi_{ss} + C_{ss} \psi_{ss}) + \psi_{ss} (C_s \psi_{ss} + C_{ss} \psi_{ss} + C_{ss} \psi_{ss}) \right]. \end{aligned}$$

Resistant microbial communities



Call Consortiums - PROMOTE

PROtecting water resources from MOBILE TracE chemicals



Coordinator: Thorsten Reemtsma (Germany)

Participating countries: France, Norway, Spain



Objectives - PROMOTE

PROMOTE focuses its activities on persistent mobile organic contaminants (PMOC), based on the analysis that (a) for this kind of contaminants an analytical gap yet exists for their determination from water and that (b) therefore little is known about the occurrence of **PMOC** in aquatic compartment and, more critically in source waters used for drinking water production. At the same time the occurrence of **PMOC** in such waters is very likely, because they are mobile and persistent.

Theme I: Identification and prevention of emerging freshwater contaminants

River Basins



Drinking Water
Quality



Mitigation



Analytical
methods



Call Consortiums - StARE

Stopping antibiotic Resistance Evolution



Coordinator: Célia M. Manaia (Portugal)

Participating countries: Cyprus, Finland, Germany, Ireland, Norway,

Spain



Objectives - StARE

- Formulate harmonized protocols to measure AR in aquatic environments (sample size, collection procedure, sample processing, indicators, metadata).
- Assess the occurrence of antibiotic residues and ARB&G and potentially interacting emerging chemical pollutants in the final effluent of urban wastewater treatment plants (UWTP) in countries with different patterns of antibiotic consumption and with different prevalence of clinical AR; Identify critical factors (e.g. antimicrobial residues, heavy metals, temperature, organic matter) coinciding with the highest AR prevalence;
- Develop and improve advanced WW treatment technologies and/or their combination with biological processes to be implemented in critical points (e.g., UWTP, hospital effluents), which will minimize mutation rates, horizontal gene transfer, and AR selection.

Theme I: Identification and prevention of emerging freshwater contaminants

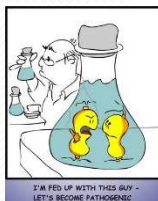
Wastewater
Treatment



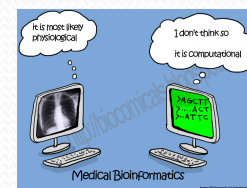
Antibiotic
resistant



Microbiology



Analytical
Chemistry



Bioinformatics

Call Consortiums - TRACE

Tracking and assessing the Risk from
Antibiotic Resistant genes using Chip
technology in surface water ecosystems



umcg



LEIBNIZ
INSTITUTE of
PHOTONIC
TECHNOLOGY



Analytik & Consulting



Institut Català
de Recerca de l'Aigua



SAPIENZA
UNIVERSITÀ DI ROMA



UNIVERSIDADE NOVA DE LISBOA



Coordinator: Wolfgang Fritzsche (Germany)

Participating countries: Ireland, Italy, Portugal, Spain

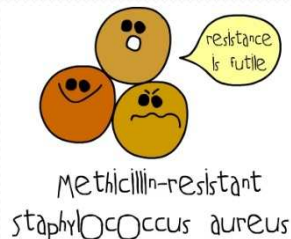
Objectives - TRACE

- ☐ develop an **on-site detection technology** in a **chipbased solution** to detect a panel of antibiotic resistance genes for waterborne microorganisms, allowing **timeand cost-efficient evaluation of AR patterns** and the associated risk for human health.
- ☐ understand the **sources and behavior of antibiotic resistance** in natural waters and infection routes

Theme 1: Identification and prevention of emerging freshwater contaminants

Theme 3: Impact on ecosystems services and human health

antimicrobial
resistance



nanotechnology



human health



on-site detection

Next FUTURE



WaterWorks2014 responds to the Horizon 2020 (H2020) Societal Challenge 5 2014 Call topic Water-3 [2014]: *Stepping up EU research and innovation cooperation in the water area*. WV2014, which is based on the model of pooling funding from 15 countries, is an ERA-NET Cofund.

The WaterWorks 2014 Cofunded Call

The topic: **Research and Innovation for Developing Technological Solutions and Services:**

- for Water Treatment, Reuse, Recycling and Desalination
- for Water Resources Management;
- to Mitigate Impacts of Extreme Events (Floods and



Droughts) at Catchment Scale.

Thank you!



The Water JPI Implementation Plan 2014-2016

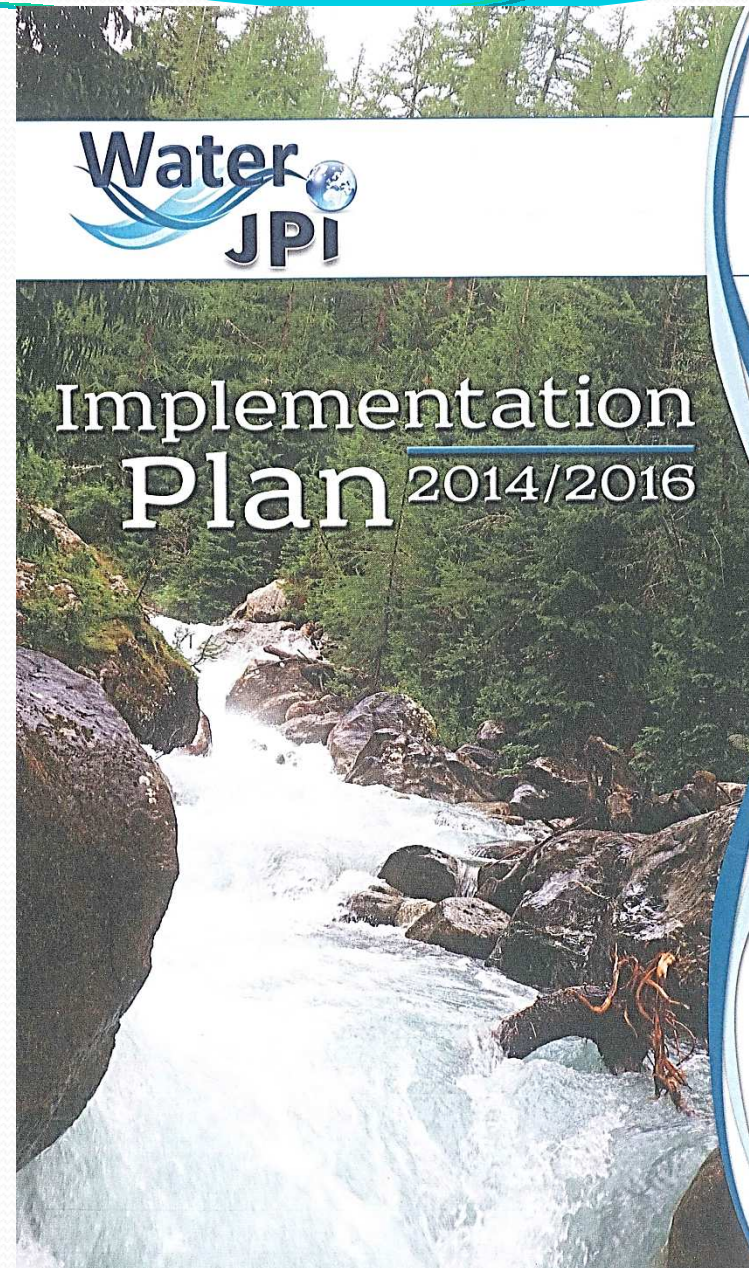


By Alice WEMAERE,
Irish Environmental
Protection Agency



Implementation Plan

- The Water JPI Implementation Plan 2014-2016
- A planning based on a wide consensus
- Expressing determination and commitment to deliver the SRIA



Implementation Plan: where are we?

- The Water JPI Implementation Plan 2014-2016
- Launched in Brussels, in October 2014



Progress in the Implementation Plan

- Three **Types of Activities**
 - Empowering Research, Development and Innovation actors
 - Interfacing with society
 - Improving the efficiency of RDI programmes
- Major **Groups of Activities** Composing the Water JPI Implementation Plan:
 - Water JPI (own activities)
 - DG Research and Innovation, towards:
 - Collaborative projects on Horizon 2020, and
 - Actions (CSA, ERANET) towards Water JPI
 - DG Environment (regarding EIP on Water, and Water Framework)



Progress on the Implementation Plan

Major Groups of Activities **Owned** and **Performed** by the Water JPI

Major Group of Activities	Specific Activity	Type of Activity	Water JPI Instrument	Timing								
				2014	2015				2016			
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Pilot Call for Proposals	1.1. Adoption of funding decisions	Empowering RDI Actors	Collaborative Projects									
	1.2. Projects Kick off Workshop		Strategic Workshops									
	1.3. Mid-term review		Collaborative Projects							★		
2. Second Call for Proposals	2.1. Infoday and partnering event	Empowering RDI Actors	Strategic Workshops									
	2.2. Call publication		Collaborative Projects									
	2.3. Adoption of funding decisions							★				
	2.4. Projects kick off workshop							★				
3. Third Call for Proposals	3.1. Submission of an ERA-NET proposal to Call Water 3 2015	Empowering RDI Actors	ERA-NET Cofund									
	3.2. Infoday and partnering event		Strategic Workshops						★			
	3.3. Call publication		Collaborative Projects						★			



Progress

Major Groups of Activities Owned and Performed by the Water JPI

cont.	Major Group of Activities	Specific Activity	Type of Activity	Water JPI Instrument	Timing									
					2014	2015					2016			
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
4. Programme Alignment	4.1. Continued activities	Improving efficiency RDI programmes	Strategic Workshops	Programme Alignment				★	★	★	★	★	★	
	4.2. 1 st workshop for sharing good practices in Programme management				★									
	4.3. 2 nd workshop for sharing good practices in Programme management									★				★
5. SRIA development	5.1. Consultation for SRIA 2.0	Interfacing with society	Strategic Workshops											
	5.2. Exploratory Workshop							★						
6. Outreach	6.1. Launching SRIA 1.0 and the Implementation Plan	Interfacing with society	Strategic Workshops											
	6.2. Participation at the World Water Forum													
	6.3. Final Conference of FP7 WatEUR project							★		★				
	6.4. EIP Water 2014 Conference													
	6.5. Launching SRIA 2.0 and the update of the Implementation Plan										★		★	

Future Activities

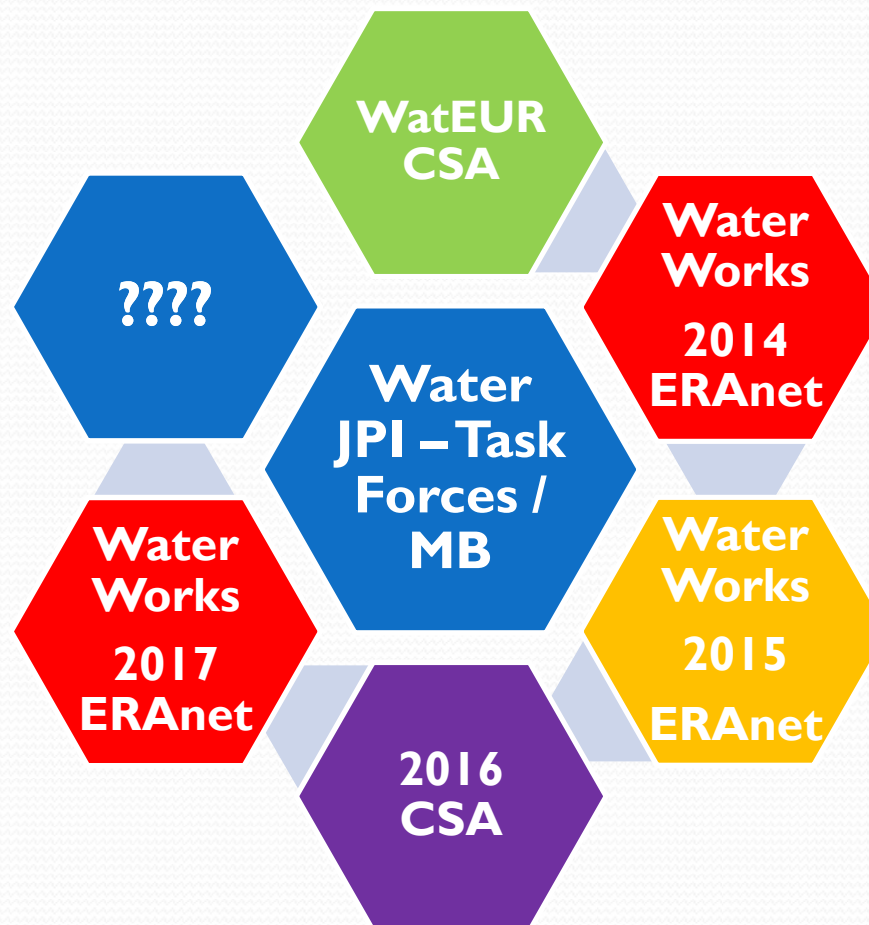


Future Activities

- Alignment
- Interactions with H2020, EC-Projects & EU-Initiatives
- International Cooperation
- Updating the SRIA
- Updating the Implementation Plan
- Dissemination
- Joint Activities:
 - Joint Calls
 - Knowledge Hub
 - Mobility & Infrastructure
 - Etc...



Future Activities – How?



Water JPI – On-going and Possible EC-funded Projects

- In support of the Water JPI Implementation

2013	2014	2015	2016	2017	2018	2019	2020	2021
CSA WatEUr								
		ERA-NET Cofund WaterWorks2014						
			ERA-NET Cofund WaterWorks2015					
				CSA WatEUr2 ?				
					ERA-NET Cofund WaterWorks2017 ?			



Main Objectives & Activities to Realise

OBJECTIVES

Involving water end-users for effective RDI results uptake

Reaching effective, sustainable coordination of European water RDI

Harmonising National water RDI agendas in Partner Countries.

Supporting European leadership in science and technology.

TOOLS

Joint Call Management

Mapping RDI activities (Questionnaire, Interview, Desk Research)

Alignment of Research Agendas (SRIA Document and Implementation Plan)

International Cooperation (MoUs, Call Partnerships...)

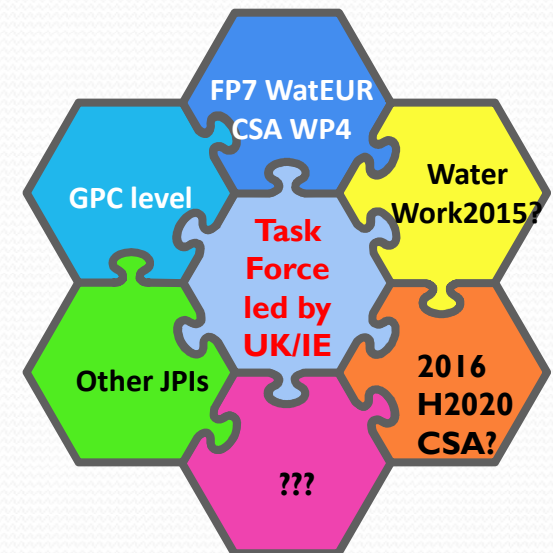
Alignment

- Joint calls have been a major activity for most of the ten JPIs, but activities should go far beyond joint calls

- *“By aligning and coordinating the institutional and competitive funding committed under national research programmes, which accounts for 88% of the public research in Europe, we can better exploit our resources for maximal societal impact”*

4 types of Alignment:

- Joint calls
- Sharing of work
- Sharing of resources
- areas where no one country can do the work alone



Interactions with H2020



Objectives

- a) Interactions with the EC - Overall JPI Water Strategy
- b) Provide a Platform to React and Gather GB's Feedback
- c) Collate Information on and Link with Water-related RDI EU Funded Projects
- d) Linkages with other Initiatives
- e) Integrating all the Water JPI relevant activities & Communicating to the wider Water JPI Community

International Cooperation



Activities since the beginning and conducted under:

- WatEUr:
 - 7 targeted countries: BR, CA, CN, IN, US, VT, ZA
- WaterWorks2014: Integration of 4 countries in the Joint call
- WaterWorks2015: Integration of 8 countries in the Joint call and dedicated Additional Activities
- Future CSA 2016 on “Support International Cooperation Activities on Water”

Updating the SRIA

- ✓ 2013 SRIA v0.5
- ✓ 2014 SRIA v1.0
- ✓ 2015 SRIA v2.0



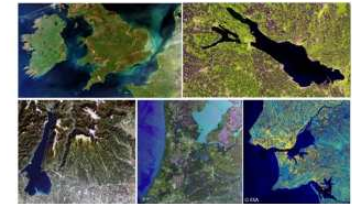
- Review of the updating process, Review of other initiatives processes, Input from the new Water JPI Advisory Boards
- Flexible SRIA updating process allowing for
 - dealing with Emerging Research Issues,
 - developing Research needs on common interest with other JPIs or countries

Updating the Implementation Plan

- New planning period: 2016-2018
- Greater contributions from the Advisory Boards ➡ Identify (new) SRIA elements to be prioritised in the next Implementation Plan:
 - As activities of the Water JPI
 - As possible items for Horizon 2020



Updating the Mapping Report



Mapping Water RDI in Europe

December, 2014

- ✓ Better understanding of the European water-related RDI activities
- ✓ Inventory of national & regional research strategies, policies and programs
- ✓ Funding of research projects, infrastructures & mobility schemes in Water RDI
- ✓ Multi-national coordination activities taking place in Europe



Joint Activities - Calls

- 2013 Pilot Call on Emerging Contaminants
- 2015 Cofunded Call on Water Treatment
(WaterWorks2014)
- ? 2016 Cofunded Call on Water Quality & Agriculture (with
FACCE JPI) – WaterWorks2015
- ? 2018 Cofunded Call on Closing the Water Cycle Gap



Joint Activities

- Knowledge Hub
- Mobility
- Infrastructure
- Etc...



Dissemination



Thanks to All!

See you very soon!

