

# The Water JPI: getting involved



Enrique Playán,  
Water JPI Coordinator,  
Tallinn  
April 18 2013



## Highlights on the Vision Document



Distilled information  
obtained through  
consensus

# The vision document

- The grand challenge: “Achieving Sustainable Water Systems for a Sustainable Economy in Europe and Abroad”



# JPI Objectives

- Involving water end-users for effective RDI results uptake.
- Attaining critical mass of research programmes.
  - Involve at least two-thirds of the public National water RDI investment in Europe.
- Reaching effective, sustainable coordination of European water RDI.
- Harmonising National water RDI agendas in Partner Countries.
- Harmonising National water RDI activities in Partner Countries.
  - Develop a catalogue of jointly programmed activities whose global budget amounts to at least 20 % of the total water RDI budget of partner Programmes.
- Supporting European leadership in science and technology.

# Developing a Strategic Agenda

- Research Questions:
  - Maintaining Ecosystem Sustainability
  - Developing safe water systems for the citizens
  - Promoting competitiveness in the water industry
  - Implementing a water-wise bio-based economy
  - Closing the water cycle gap
- Work in progress... currently in the hands of Partners

# 1. Ecosystem Sustainability

- Respond to pressures leading to :
  - overexploitation and depletion of water resources,
  - pollution,
  - sea water intrusion in groundwater,
  - morphological changes/infrastructures and works
- Risk-management of water-related extreme events, (floods and droughts), critical to climate change adaptation
  - develop indicators, models and innovative methods to deal with uncertainties for the monitoring of threats, risk assessment and early warning

# 1. Ecosystem Sustainability

- Enabling role of hydrological sciences and related technologies, including ecosystem management, characterization, monitoring or regulations on environmental standards
- Ecosystems services
  - Part of a management strategy in new multidisciplinary approaches.
  - Opportunities to enhance the sustainability and adaptability of the natural environment and biodiversity
  - The capacity to perform ecosystem services should be quantified and valued.
- Ecological engineering approaches
  - Proven capacity to contribute to ecosystem sustainability.



# 1. Ecosystem Sustainability

Climate Change      Sediment Transport      Catchment Management  
Pressure-Impact      Groundwater      Water Resources      Pollutants      Bottlenecks  
**Ecosystem Services**      Monitoring      Mapping Risks  
Agricultural pressure      Bioassessment Tools  
Ecohydrology      People-Centered Monitoring      **Drought and Floods**  
Planning Risk Management      River Continuity  
Cyanobacterial blooms      Fish Migration      Policies on Chemicals  
Acidification      Environmental Quality Standards  
Scenario Analysis      Pressures  
**Ecological Engineering**      Rising Groundwater  
Risk Indicators      Holistic      Extreme Events      Urbanization  
Resilience      Bronwnification  
Heavily Modified Bodies      Economic Valuation





## 2. Safe Water Systems for Citizens

- Current threats by emerging pollutants including:
  - Pathogens (including antibiotic resistant bacteria and viruses),
  - Cyanotoxins,
  - Nanomaterials. . .
- Knowledge gaps remain concerning:
  - Environmental behaviour (surface water, treated water, groundwater)
  - Impact on human health: direct consumption, crops, water supply and storage in rural and urban environments. . .

## 2. Safe Water Systems for Citizens

- Best practices for minimizing risks associated with water distribution and storage facilities, or natural hazards
  - Need for innovative practices minimizing risks associated with:
    - Water distribution and storage facilities in urban areas
    - Natural hazards (floods and associated risks for citizens' life)
  - For example: improve performance of storm water retention ponds (managing the contaminants) and advanced wastewater treatment (managing the overflows during floods).
- Climate change may locally increase the frequency and intensity of floods and droughts, requiring further efforts on water resources, hydrodynamics, social sciences and geography...



# 2. Safe Water Systems for Citizens

## Natural Hazards

Pathogens  
Cyanotoxins

## Ageing Urban Systems

Trace Organics

System Rehabilitation Planning

Urban Floods

## Antibiotic Resistance

Cosmetics

## Emerging Pollutants

Nanoparticles

Perfluorinated Compounds

Endocrine disruptors

## Storage Facilities Risks

Bio-indicators

Monitoring and Control Systems

Organosilicon compounds

Nanomaterials

Bio-assays

## Water Distribution Risks

# 3. Competitiveness in Water Industry

- Market-oriented technological solutions
  - Robust, smart and cost-effective technological solutions
  - Designing for different water uses
  - Water distribution and measurement
  - Advanced water treatment for all types of users
  - Making water reuse real, safe and cost-effective
  - Desalination
  - Recovery and revalorization of wastewater sewage and desalination by-products

# 3. Competitiveness in Water Industry

- Regulatory, governance and management frameworks
  - Water management as part of a green economy
  - Contribute to the sustainability of other sectors: land use, energy and transport.
  - Accommodate policies to new concepts (such as green infrastructure and natural water retention measures...)
  - Multidisciplinary and integrated approaches, through participative, economic approaches coupled with hydrological modelling



# 3. Competitiveness in Water Industry

**Governance**  
Biofouling      Low-energy      Hybrid Membrane Systems

**Market-Oriented**      Reuse      **Technological Solutions**  
Eco-Efficiency      Sifting Paradigm

Coating      Desalination      Distribution      Regulation

Storage      Process Intensification      Bottleneck

**Regulatory**      Real-Time Information      Treatment      Separation  
Irrigation

Brine      Mineral Recovery      Renewable Energy      Oxidation

Purification      Measurement

Conveyance      Leakage      **Management**  
**Policy**      Smart Water Technologies      Sensor Networks

# 4. A Water-Wise Bio-Economy

- Bio-economy: “use of renewable resources from land and sea, and the use of waste to make value added products, such as food, feed, bio-based products and bioenergy”
- Leading to the intensification of agriculture
- More pressure on natural resources to increase the production of food and biomass, more water and more agrochemicals
- Water depletion and pollution applies to both rainfed and irrigated systems

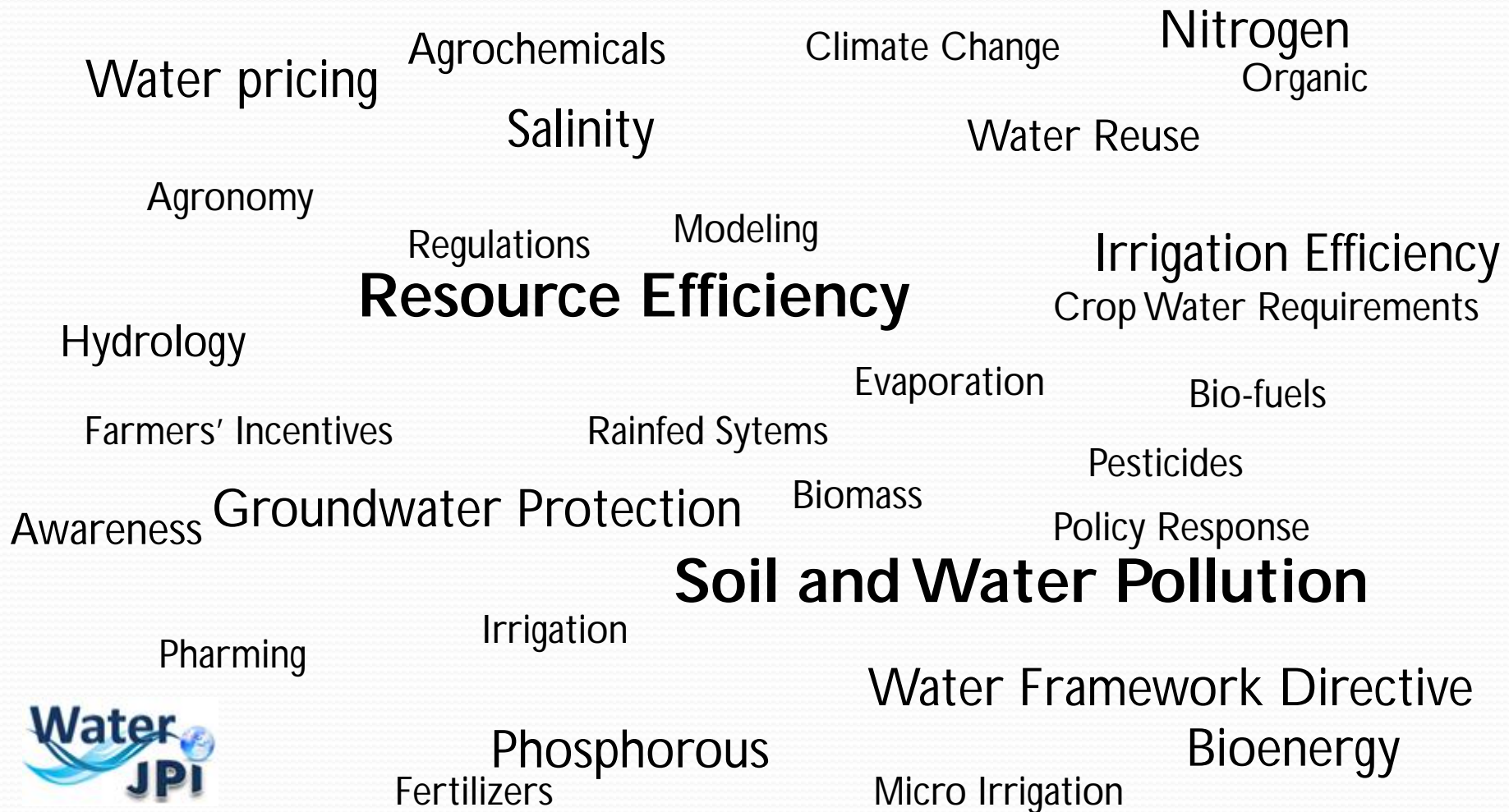
# 4. A Water-Wise Bio-Economy

- Resource efficiency
  - Less water consuming crops, Water conservation techniques,
  - Irrigation scheduling and technologies
  - Advances in hydrological modelling
- Reduction of soil and water pollution
  - On-farm measures... efficient use of inorganic and organic fertilizers
  - Modifying crop rotations and sowing dates,
  - Selecting more pest-resistant crop varieties,
  - Designating buffer strips along water courses.
  - Sustainable chemical consumption patterns through a mix of policy responses
  - Need for better understanding of contaminants transfer within soils and water systems.





# 4. A Water-Wise Bio-Economy



# 5. Closing the Water Cycle Gap

- Reconciling water supply and demand
- Scarcity may be related to quantity and to quality too!
- New integrated concepts related to:
  - Integrated water management
  - Water re-use, energy,
  - Recovery of valuable substances,
  - Monitoring and control,
  - Decentralized systems,
  - Interaction with natural resources.
- Combination of
  - Technological and environmental research
  - socio-economic research
- Costs and benefits of the different solutions must be systematically assessed.
- Water foot-printing: deepened, practical methods and certifiable systems.

# 5. Closing the Water Cycle Gap

- Concepts and solutions for drought sensitive areas, such as:
  - Such as Management of Aquifer Recharge
  - Soil-Aquifer Treatment, as part of an integrated strategy
- Socio-economic approaches
  - Participatory approaches bring together different stakeholders, users and water authorities and provide a forum or platform for discussion.
  - Conceived to facilitate dialogue and to identify problems and best alternatives for decision making.
  - Further develop decision support systems (DSS)
  - Water users' behavior (users' acceptance of innovations) water economics and water governance, regarding frameworks, instruments and integrated models.



# 5. Closing the Water Cycle Gap





# Current Water JPI Partners and Observers



A group of committed  
and motivated research  
managers

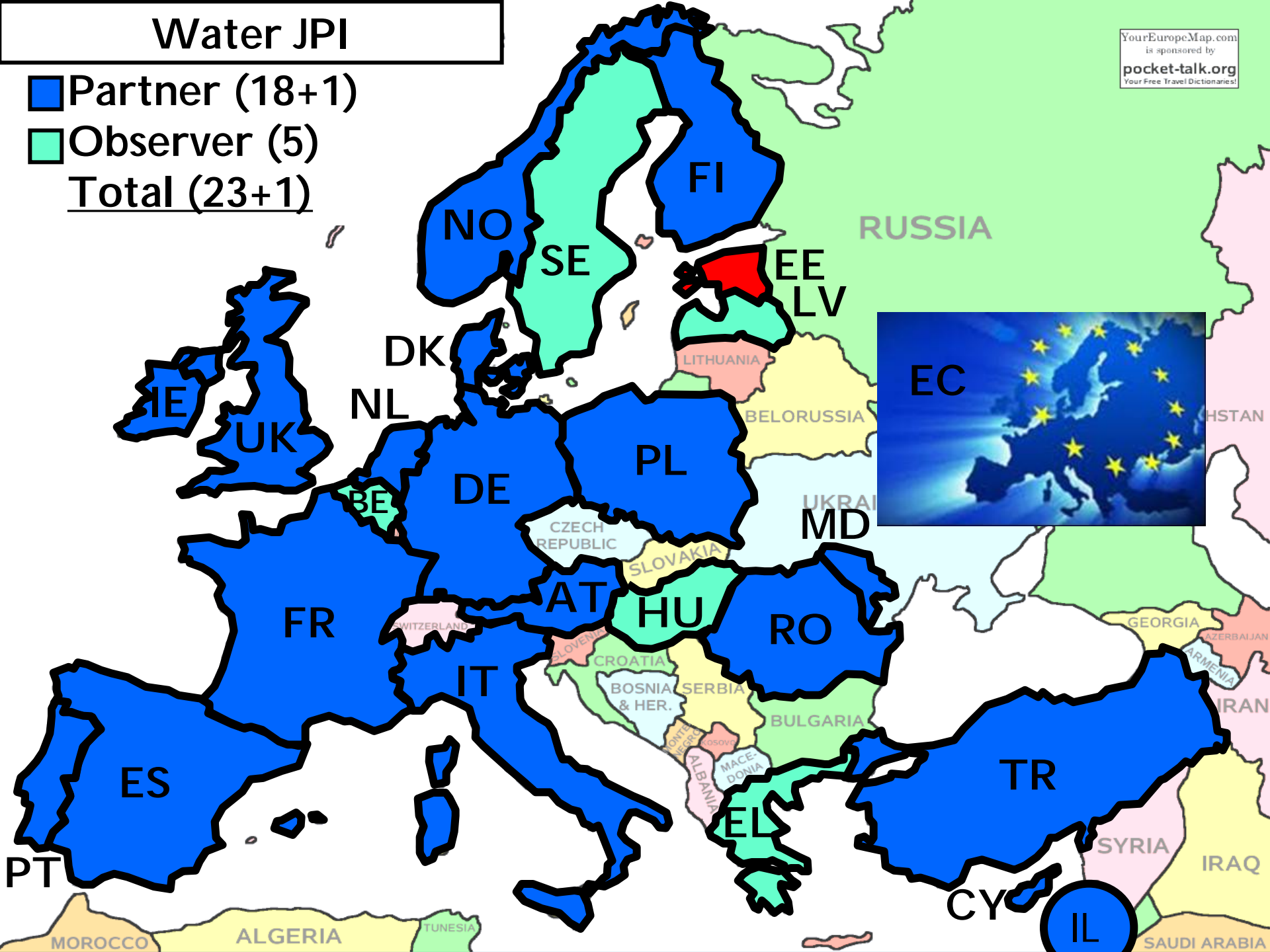
# Water JPI

■ Partner (18+1)

■ Observer (5)

Total (23+1)

YourEuropeMap.com  
is sponsored by  
**pocket-talk.org**  
Your Free Travel Dictionary!



# JPI Partners: the Programme Logo Gallery

## Cyprus



## Denmark



Danish Ministry of the Environment

## Finland

AKVA GROUP



MINISTRY OF AGRICULTURE AND FORESTRY



Ministry of Education and Culture

Opetus- ja kulttuuriministeriö

Undervisnings- och kulturministeriet



S Y K E

## Germany



Bundesministerium für Bildung und Forschung



FONA  
Research for Sustainable Development  
BMBF



JÜLICH  
FORSCHUNGSZENTRUM

# JPI Partners: the Programme Logo Gallery

## France



## Ireland



## Israel



## Moldova

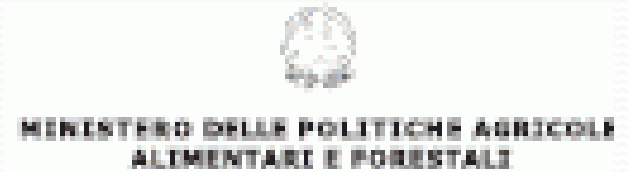


Academy of Sciences of Moldova



# JPI Partners: the Programme Logo Gallery

## Italy



## The Netherlands



## Norway



# JPI Partners: the Programme Logo Gallery

## Poland



Ministry  
of Science  
and Higher  
Education

Republic of Poland

**European Regional Centre for Ecohydrology**  
under the auspices of UNESCO  
International Institute of the Polish Academy of Sciences

## Portugal



**MCTES** MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR  
Ministry of Science, Technology and Higher Education

## Romania



AUTORITATEA NATIONALA PENTRU CERCETARE STIINTIFICA



## Spain



## Turkey



The Scientific and Technological Research Council of Turkey

## United Kingdom

NATURAL  
ENVIRONMENT  
RESEARCH COUNCIL



Centre for  
Ecology & Hydrology

NATURAL ENVIRONMENT RESEARCH COUNCIL



Department for Environment  
Food and Rural Affairs

# The Water JPI in Madrid, Feb. 2012





# Funding European Water research and innovation



A few maps to identify a niche for the Water JPI

# Who is involved in European Water Research and Innovation funding?

- National and Regional Programmes
- Horizon 2020 (FP7)
- Acqueau (Eureka cluster for water)
- European Innovation Partnership on Water
- COST
- ... and the **Water JPI**
- A few maps will help understand the scene

# A map of European research and innovation funding organizations



Private

FUNDS

Public

European  
Innovation  
Partnership



ACQUEAO



JPI

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

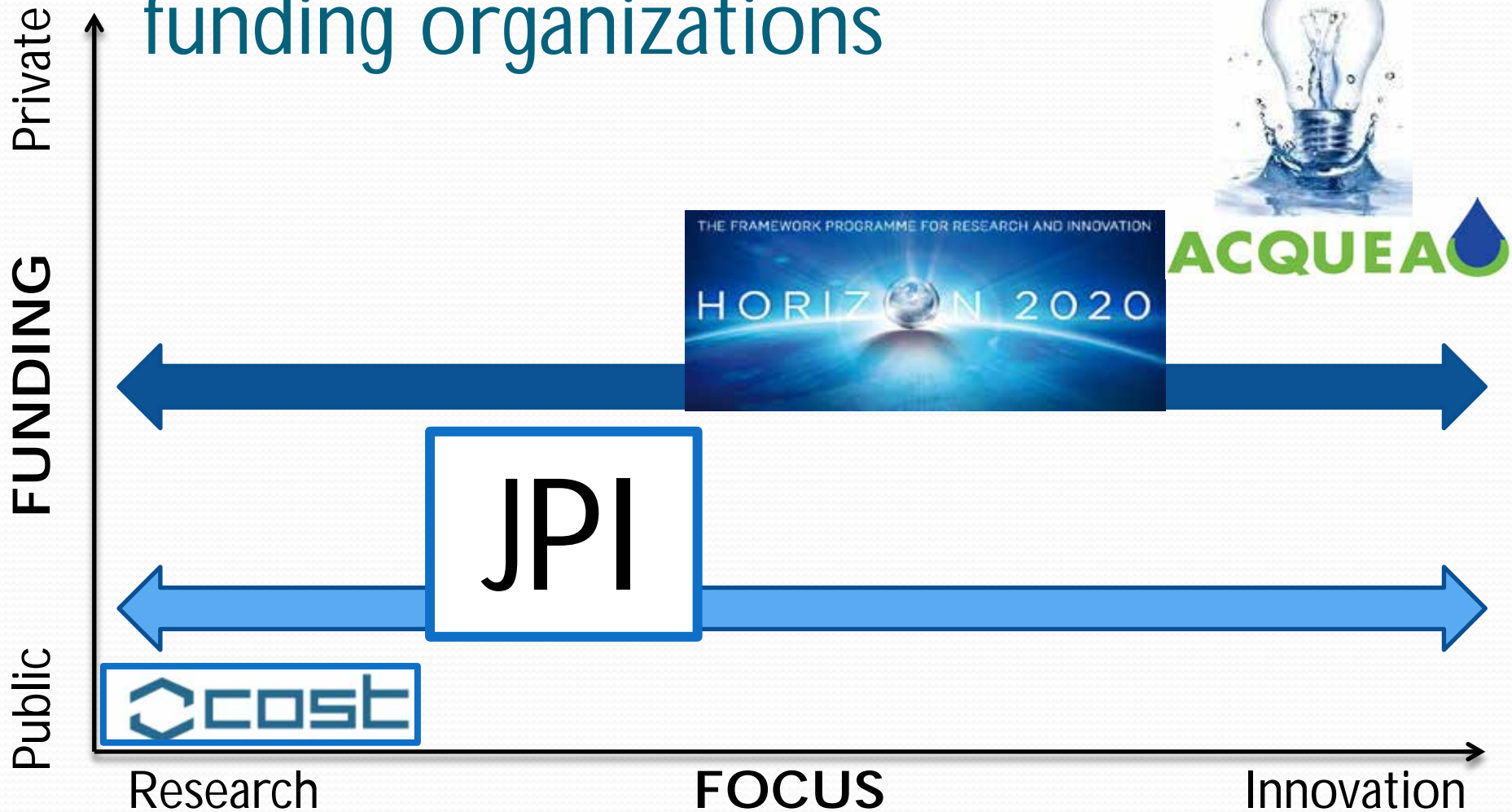
HORIZON 2020

Research

FOCUS

Innovation

# A map of European research and innovation funding organizations



Projects  
Mobility  
Infrastr.  
Results  
Coord.



Research

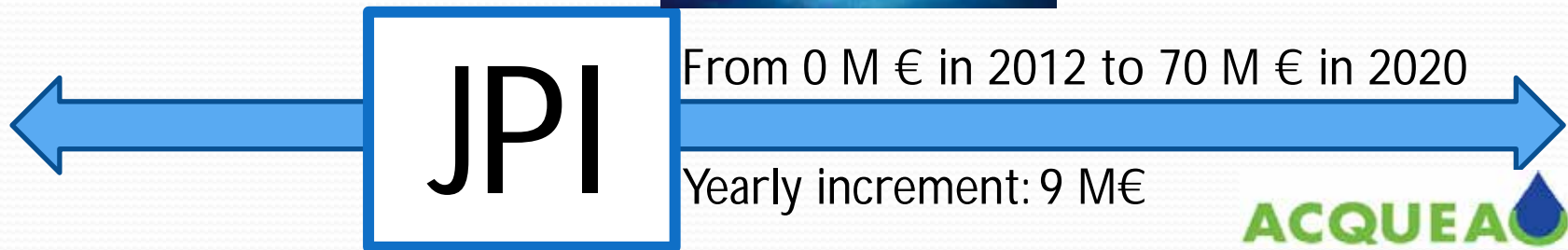
FOCUS

Innovation



Small Water Programme Size Large

EIP on Water  
is not a funding  
organization



Research

FOCUS

Innovation

# The Water JPI as a funder

- From research to innovation, representing the interests of partner countries
- Finds a specific niche in the transnational funding of research-oriented projects
- This niche is gaining importance with Horizon 2020 increasingly targeting innovation and financing companies
- Will attain a relevant funding size in the coming years, boosted by
  - Cost effectiveness to partner countries
  - Support from H2020 in areas of overlap
- Effective use of variable geometry, capacity to address sub European water challenges
- In addition to funding, coordination of national/regional agendas

# Funding the Water JPI

- Till 2012, organizational costs have been covered by in-kind contributions from partner countries
- No fees have been collected or are foreseen
- Since January 2013, executing WatEUr, an FP7 CSA covering organization costs for three years
- Participation in activities is always based on variable geometry



# Upcoming activities



Getting quite busy in 2013 and beyond...

# 2013: Pilot call for proposals

- Will be published in September 2013
- Preliminary discussions permit to advance that this will be an energetic, mobilizing activity.
- Collaborative projects are foreseen
- Governing Board approval in May
- Stay tuned to the Water JPI web site for more information on the Call Topic(s), deadlines and procedures.
- The call will cover the funding expectations (progress towards 2020)

# 2014: Joint Activities

- Will be published by September 2014
- Will include
  - A call for proposals on collaborative projects for selected topic(s)
  - Additional instruments for specific topics
- Wider mobilization and Scope

# Other on-going activities

- Interaction with Horizon 2020:
  - Societal challenges, mobility, infrastructure
- Refine Mapping of R&I activities
- Progress towards a Strategic Research and Innovation Agenda
  - First agenda document released in May
  - SRIA 1.0 released in June 2014
- Definition and planning of additional instruments
- Search for strategic Alliances outside Europe
- Strengthen external communication



Thanks!