

Scientific Perspective on the Water JPI SRIA RDI needs within Theme 5



Jaap Kwadijk
Deltares /
U.Twente, NL/
JPI-Water - STB

Topics

- One agenda.....A challenge
- What did we promise and what did we achieve so far
- What has not been addressed and is still needed
- Is this addressed in CtWVG and how?
- Some thoughts on issues not to forget

One agenda for....



Cold / Wet

GDP.

9900

GDP.

73000

Warm / Dry

Flood standard

10^{-5}

Debt

10%

Debt

177%

> 80% agricultural water

Do drink
tapwater



1 m³

€ 0,40



1 m³

€ 5,75

Do not drink
tapwater



What did JPI-Water promise and
what was achieved so far

Important issues according to the vision

- Unbalances in water demand and availability (affects 130 million inhabitants (30% of population in Europe))
- Construction and maintenance of water-related infrastructure (Leakage of water from supply systems in parts of Europe is substantial)
- Worldwide 880 million people use an unimproved drinking water source and 2.5 billion people are without improved sanitation
- Emerging pollutants may have effects on human and ecosystems health.
- Droughts and floods have a clear impact on the status of European ecosystems (but losses are difficult to evaluate).
- Changes in land use are likely to also influence water quality.
- World economy: from a fossil fuel economy towards a more bio-based economy

Directions to go according to the vision

- Multi disciplinary approach (2eco, tech, soc).
- EU competitive water sector
- Enhancing the absorbing and self-purification capacity of the landscape and water ecosystems
- Providing each citizen with clean drinking water and proper sanitation
- Ensuring adequate technology deployment in the water sector

What did JPI water achieve so far..

(a.o). Calls and research

- Pilot call 2013: Emerging water contaminants - anthropogenic pollutants and pathogens. 7 projects
- WaterWorks 2014: Research and Innovation for Developing Technological Solutions and Services (16 interesting projects):
 - for Water Treatment, Reuse, Recycling and Desalination;
 - for Water Resources Management;
 - to Mitigate Impacts of Extreme Events (Floods and Droughts) at Catchment Scale
- WaterWorks 2015: Stepping up EU research and innovation cooperation in the water area : "Sustainable management of water resources in agriculture, forestry and freshwater aquaculture sectors" . *In progress*

Wat is still missing after the first 4 themes .(a.o)

- “Making the case”
- People and economy
- Measurement of / indicators for succes
- Cooperation on lab. facilities

Food for thought about making the case



Technology adoption:

1. In a **few years** we have achieved that **six** of the world's **seven billion people** have a mobile phone
2. In **many decades** we have achieved that **only 4.5 billion** have a toilet,

Closing the Water Gap

- Last theme.... (should not be a bit a mix of forgotten issues)
- To bridge the gap between supply and demand by enabling sustainable management of water resources
- Not only on science and technology but also on “making the case”

Important needs for “making the case.”

- **Legislative measures** (WFD, Water Blueprint, Water Scarcity and Droughts Strategy) need to be coupled with the implementation of measures for appropriate water treatment and management
- **Commitment from different parties** (joint fact finding in experiments; Integration of water policy with other public policies (agricultural, industrial, domestic, urban, regional planning, transport, energy, biodiversity => real interdisciplinary research)
- **Understandable and meaningful results** from the natural sciences
- **Proof that it can be done** : Not only assessments, but also solutions; provide show cases , living labs
- **Where to invest:** Articulate knowledge of ecology, social sciences, economics, geography, environmental sciences, geosciences and technology

How does *Closing the Water Gap* address these issues

Subtheme 5.1. Enabling sustainable management of water resources

- 5.1.1: Promoting water RDI infrastructures for a better understanding of hydrological processes on different scales (*joint fact finding=>more commitment*)
- ❖ 5.1.2 : Promoting adaptive water management for global change (*after Paris the question is where2invest*)
- 5.1.3 : Implementing MAR and other NWRMs (*proof it can be done, show solutions*)
- 5.1.4 : Innovating on practical, low-cost technologies treating wastewater to produce resources that are safe for reuse (*proof it can be done, show solutions*)
- 5.1.5- 5.1.7: Mitigating water stress in coastal zones; Securing freshwater in the Mediterranean and Baltic basins; Securing freshwater in the Danube (*proof it can be done, pilots*)

How does *Closing the Water Gap* address these issues

Subtheme 5.2. Strengthening socio-economic approaches to water management

- 5.2.1. Integrating economic and social analyses into decision-making processes (*Commitment with different parties*)
- 5.2.2. Connecting socio-economic and ecological issues (*making the case (do not forget the legislation)*)
- 5.2.3. Promoting new governance and knowledge management approaches (*making the case*)

So..... It closes at least part of the gap

Thoughts on what should not be forgotten in the call (and the coming years)

- Joint programming is great but
 - Slow in adopting to fast developments, (*last 12 months: SDG's, Paris,... Trump.....?, UN-WWDR: water and Jobs; role of water in conflicts*)
 - World is rapidly changing difficult for agenda setting
 - What does this mean for the financial instruments that we apply)
- Joint programming eases:
 - if there are joint problems (e.g. emerging pollutants, European legislation, WFD) or
 - If the need of large scale cooperation is indispensable (e.g. weather forecasting, eg ECMWF)

Contact Details

- Chair of the board: Despo-FATTA-KASSINOS (dfatta@ucy.ac.cy)
- On this presentation:
jaap.kwadijk@deltares.nl