

A Joint Programming Initiative



Water Challenges for a Changing World

A challenging statement...

“Under an average economic growth and an actual efficiency improvement of 1% a year, the world wide water demand and supply gap will be approximately 40% by 2030”

Charting Our Water Future (2009)

The 2030 Water Resource Group

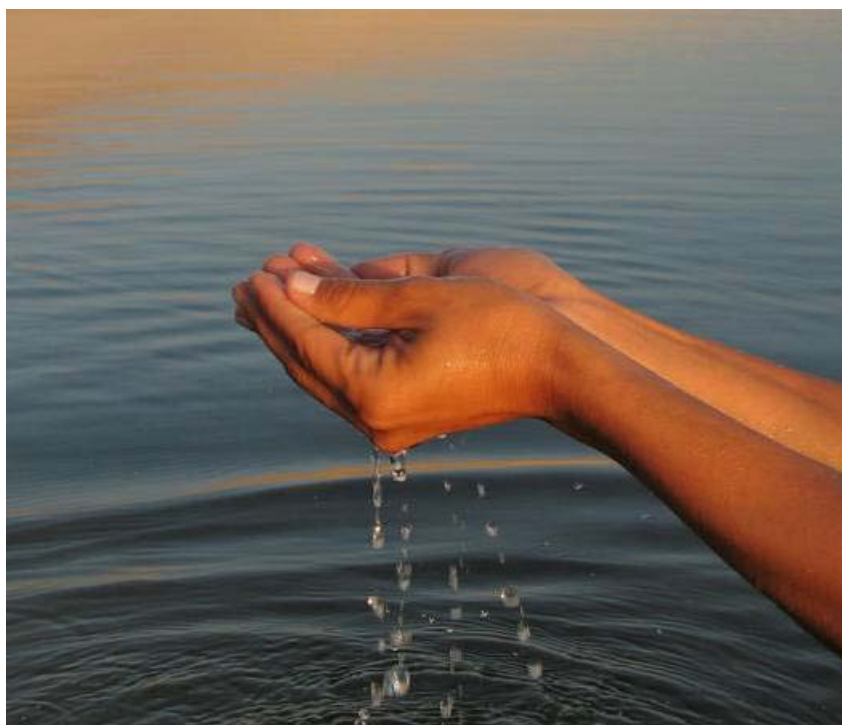
Where we stand today

- In 2008 EC challenged countries to develop initiatives on joint programming with the purpose of increasing the efficiency and impact of national public funding in strategic areas.
- Joint programming targets public research programmes first and foremost: public-public cooperation.
- Following two years of discussion, the kick off meeting was held in September 2010

What is a JPI?

- Aligning research programming in Member States + Associated countries
- Voluntary basis, variable geometry
- Coordination of national research programmes and funds
- Funding projects with a European Dimension on topics responding to “grand challenges”
- Innovation Partnership: Water Efficient Europe

1 The Vision



**European
strategic themes
leading to
breakthroughs in
water science
and technology**

Water quantity and quality

- **Overexploitation: unbalances in water demand and availability**
- **Water quantity issue**
 - European cities concentrate water use and sanitation
 - Groundwater depletion in coastal areas: salinization
 - Intensification of agriculture: increased irrigation water
 - The price of water can contribute to water scarcity
- **Water quality issues:**
 - Fertilizers, soil and water salts: raising nutrient levels
 - Emerging pollutants (surfactants, heavy metals, hormones and pharmaceuticals in general, but also cosmetics and nanoparticles)

Extreme events: part of European history

(View of Zaragoza in 1647, by Juan Bautista Martínez del Mazo)



Extreme events

- **Drought and floods:**
 - Natural traits of European climates,
 - Accentuated by human activities
- **Climate change**
 - More frequent river floods
- **A clear impact on the quality of European ecosystems.**
 - A variety of societal losses which are not always evident or easy to evaluate
- **Research is also needed in governance and behavioural sciences.**

An interrelated set of challenges

■ Economic

- The world market water: \$ 463 billion/year
- Investments in water technology around the world increase every year
- High risk of ineffective investments if the water system is not properly understood

■ Ecological

- Overexploitation and degradation decrease ecosystem ability to provide resources
- Extreme events have a clear impact on European ecosystems

An interrelated set of challenges

■ Societal

- Right to clean drinking water and proper sanitation
- Protection from new and emerging water pollutants

■ Technological

- Major breakthroughs in drinking water technology and sanitation
- Reducing energy input in desalination and water treatment processes.
- Co-generating energy in processes such as sewage treatment

2 Achieving the Vision

A common research agenda with multi-annual commonly decided activities and funding mechanisms



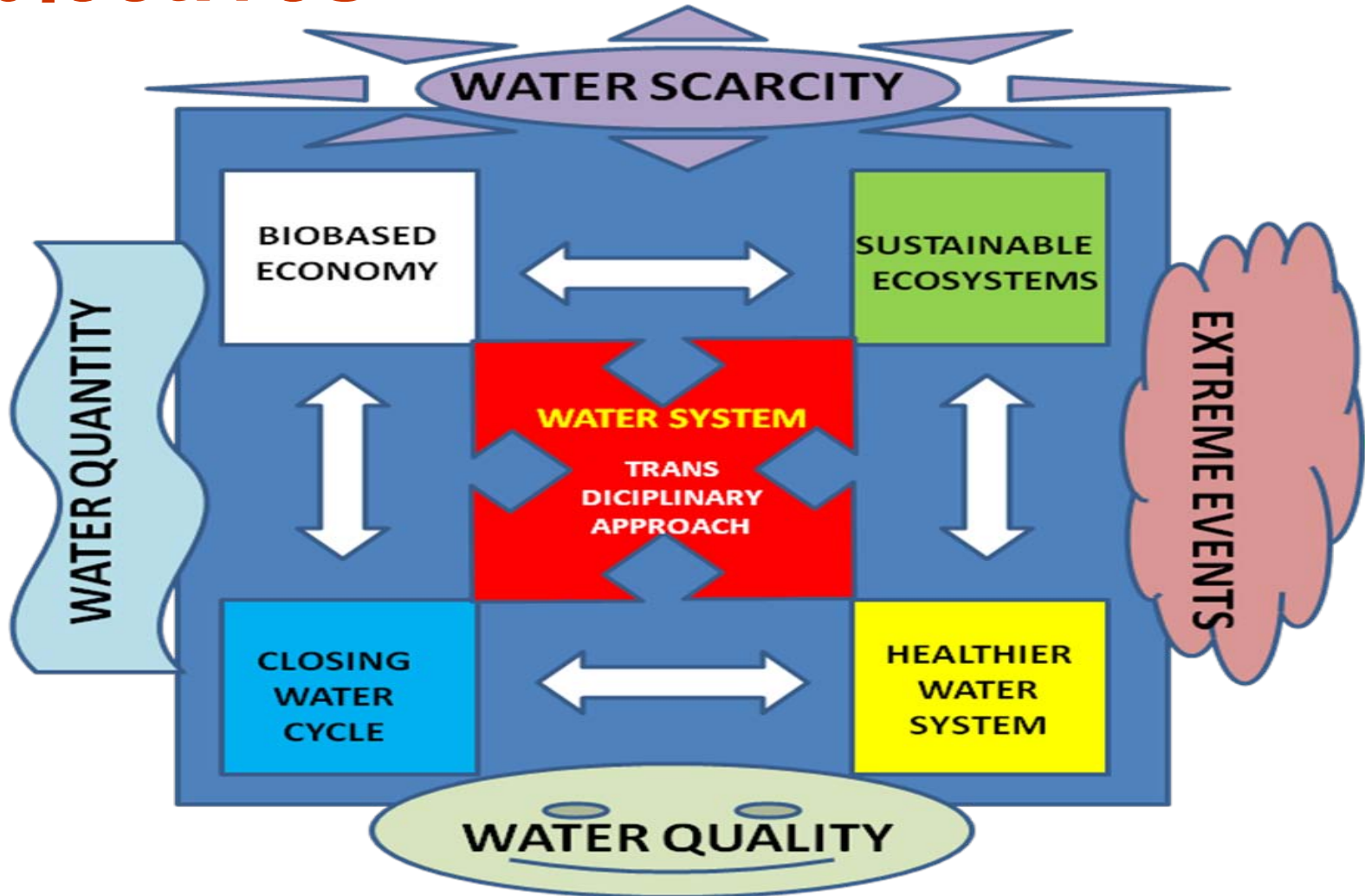
Objectives

- **Preventing the negative effects of the bio-based economy on the water system**
 - Biomass will become a key raw material
 - Water consumption and desertification
- **Searching for a sustainable water balance**
 - Climate change is threatening ecosystems
 - Develop tools, indicators and models for monitoring of threats, risk assessment and early warning
 - Enhance ecosystem resilience to stress
 - Identifying systemic restoration solutions

Objectives

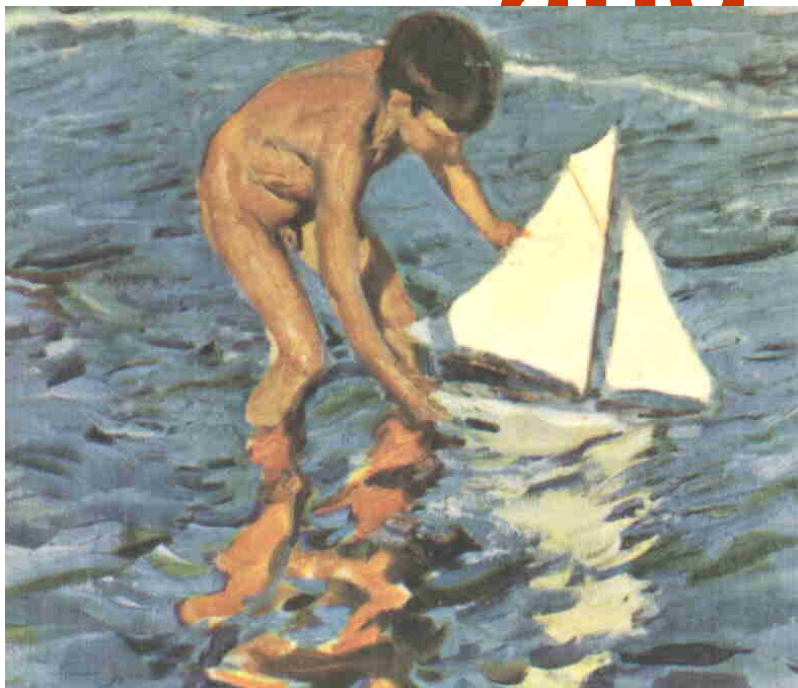
- **Healthier water systems for a healthier society**
 - New contaminants: Impact on water quality and ecosystems; human health, societal well-being
 - Assess removal by natural processes in water and soil, or by drinking water treatment
- **Closing the water cycle gap**
 - Integration methods and measures to reach sustainable use of fresh water, including economy and policy
 - Analyse water footprinting
 - New materials and concepts, such as Management of Aquifer Recharge or Soil-Aquifer

An interrelated set of objectives



3 Added value, benefits and impact

Opportunities for economies of scale, larger critical mass of resources and increased cross-border collaboration



Addressing fragmentation

- **Challenges cannot be fully addressed by any individual Member State alone**
- **Despite National and EC funding, the variety and complexity of the challenges have limited our success**
- **This JPI will permit to:**
 - Increase critical mass, integrate different ecosystems
 - Widen up the scope of European proposals
 - Share large research facilities (i.e., experimental treatment plants)
 - Network open field experiments (i.e., experimental watersheds)

Added value, benefits and impact

■ Policy support

- JPI will provide science-based knowledge supporting a large number of EC Directives and National policies

■ The Framework Programme

- Establish links to ongoing RTD activities
- Capitalise previous efforts on a number of water-related ERANETs, ensure continuation of their activities

Added value, benefits and impact

- **Partnerships beyond Europe**
 - Strategic partnerships will be sought on the basis of mutual benefit and mutual interest
 - Actions devoted to training, mobility, and dissemination will play a fundamental role to support the EUWI
- **The Water Supply and Sanitation Technology Platform (WSSTP)**
 - The European industry is very well represented in WSSTP
 - Synergies between JPI and WSSTP will be exploited:
- **Additional National Stakeholders**

4 Member Countries

**Teaming up to
develop Joint Water
Science and
Technology**

Member Countries

- **AT**, Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management
- **CY**, Cyprus Institute, Energy, Environment and Water Research Centre
- **DE**, German Federal Ministry of Education and Research
- **DK**, The Danish Agency for Science, Technology and Innovation.
- **ES (Coordinator)**, Spanish Ministry of Science and Innovation
- **FI**, Finnish Funding Agency for Technology and Innovation and Academy of Finland
- **FR**, Ministry of Ecology, Energy, Sustainable Development and Sea
- **HU**, National Office for Research and Technology
- **IE**, Environmental Protection Agency
- **IT**, Italian Higher Institute for Environmental Protection and Research
- **NL (Co-coordinator)**, Dutch Ministry of Economic Affairs
- **PL**, European regional Centre for Ecohydrology u/a UNESCO / PAS
- **RO**, Romanian National Authority for Scientific Research
- **SE**, Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning

5 Envisaged activities



How to implement the vision and make it real

JPI Activities

- **Elaboration and periodic update of a Strategic Research Agenda**
- **Networking of Ministries and Research Funding Agencies, dialogue with scientists and stakeholders**
- **Coordination with the WSSTP**
- **Coordinated Calls for Proposals**
- **Funding of transnational**
 - **Research projects**
 - **Research infrastructures**
 - **Mobility**
- **Project follow-up**
- **Internal review**



Thanks!