

Water Challenges for a Changing World Joint Programming Initiative



Progress Report

March 15th, 2011

Executive Summary

European water policy has ambitious goals and calls for the strengthening and further integration of European Research, Development and Innovation (RDI) in the field of water. This will require developing new knowledge and reinforcing mechanisms for knowledge and technology transfer to end-users. Joint Programming Initiatives (JPIs) focus on the harmonization of public RDI activities. The Joint Programming Initiative ***Water Challenges for a Changing World*** aims at tackling the ambitious challenge of achieving sustainable water systems for a sustainable economy in Europe and abroad. This will be obtained through a multi-disciplinary approach encompassing economic, ecological, societal and technological considerations. The JPI objectives include:

- Searching for a Sustainable Balance in the Ecosystem;
- Developing Healthier Water Systems for a Healthier Society;
- Preventing the Negative Effects of the Bio-based Economy on Water Systems; and
- Closing the Water Cycle Gap.

The recent financial crisis and the still struggling European economies call for a change in approach. At the European and global levels, the world is much more interconnected and this leads to the need for globalised solutions across a range of policy areas – including through RDI. Joint Programming provides the possibility to combine RDI resources in a more strategic and effective way with a view to tackling grand societal challenges by combining national research efforts.

In May 4th 2010, the High Level Group (GPC) endorsed the Joint Programming Initiative (JPI) on *Water Challenges in a Changing World*. Since that day to March 2011, via the commitment of its partner and observer countries, this JPI has been able to:

- Produce a common ***Vision***;
- Design an ***Implementation Plan***;
- Set up a ***Governance Structure***;
- Progress in the thematic analysis of a ***Strategic Research Agenda***;
- Develop ***Internal Communication*** tools; and
- Carry out an exercise on ***Mapping Water RDI in Europe***.

Today this JPI is composed by 14 partners, and counts on 6 observing countries. Dozens of RDI programmes have been identified and analysed for international cooperation readiness. Partner countries mobilize an estimated amount of 185 M€/yr for public water RDI funding. This figure represents 52 % of the estimated current public investment in water RDI in the EU Member States and Associated Countries. This motivated team of programme owners and managers is ready to finalise implementation of its Governance Structure in 2011 and to produce the first release of the Strategic Research Agenda by the end of 2012.

Translations: [ES](#) [FR](#) [IT](#)

Table of Contents

Executive Summary	ii
1. Foreword.....	1
2. Current JPI partners and observers.....	2
3. RDI Programmes on Board: the Logo Gallery	4
4. About this Joint Programming Initiative.....	6
5. A vision for Water Joint Programming	7
5.1. Water in a Changing World.....	7
5.2. A common vision towards achieving sustainable water systems	13
5.3. Working together to tackle the water challenges more effectively.....	17
6. Designing and implementing a governance structure	24
6.1. The Governing Board	24
6.2. The Executive Board.....	24
6.3. The Advisory Board	26
6.4. The Secretariat.....	27
7. First steps towards a Strategic Research Agenda.....	28
8. Communication Strategy.....	30
8.1. Internal Communication	30
8.2. External Communication	30
9. Mapping National public Water RDI in Europe	32
9.1. A procedure for the mapping of National public water RDI funding	32
9.2. National public water RDI funding investments in Europe	36
9.3. Country Summary Reports	36

I. Foreword

The commitment of the Ministry of Science and Innovation of Spain to water research stems from the recurrent water challenges faced by the Spanish society. While water quantity has been an issue for centuries, water quality problems are quickly gaining importance as the pressure on natural resources increases and society develops. Every water crisis evidences the need for tools and strategies leading to a more efficient and sustainable water management, as well as measures to prevent the effects of natural and environmental hazards on the water systems.

Necessity forced the Spanish society to become water wise, and this is why we are surrounded by cultural heritage examples of collective action in water resources management. This tradition led to the creation in Spain of the first European Water Basin Organization in 1926. Today, a continuation of this effort has resulted in the impulse of the “Water Challenges for a Changing World” Joint Programming Initiative.

A motivated group of partner countries have decided to align their water research programmes to maximise the impact and the excellence of their research, development and innovation activities. This coordinated action of European countries intends to make the most of increasingly limited resources... this is the challenge that research and water policies try to match every day.

Finally, we would like to express due recognition to all the persons and institutions that have contributed to set up this initiative. We are convinced that this dossier will set the foundations for a new phase of the European Joint Programming in water.

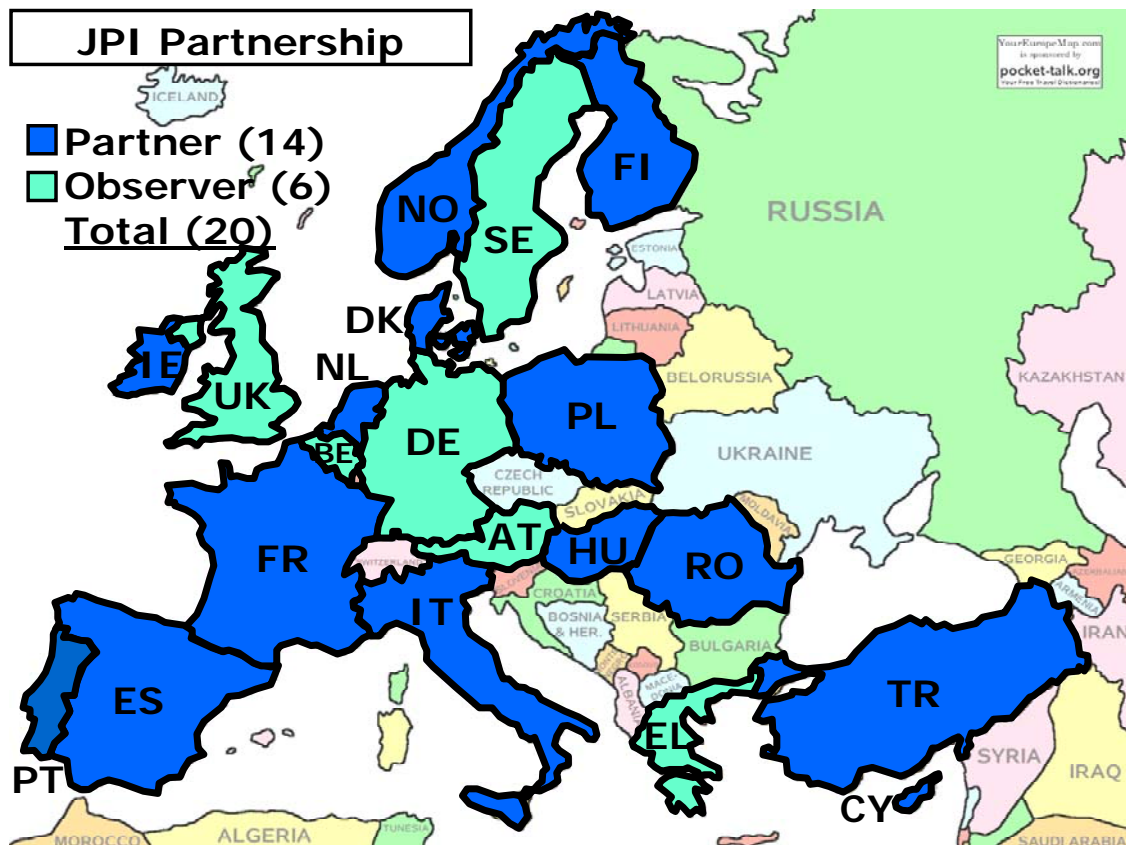
Montserrat Torné i Escasany
Director General,
Research

Carlos Martínez Riera
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International Cooperation and Institutional Relations

Ministry of Science and Innovation (MICINN)
Governing Board Presidency Institution

2. Current JPI Partners and Observers

This JPI is currently composed of 14 partner countries. A group of 6 additional countries follow the development of the JPI as observers. The following map presents the partnership structure.



The JPI is coordinated by Spain and co-coordinated by The Netherlands. The specific RDI programmes within each country are detailed at the Mapping section of this document (Chapter 9).

The list of Partner countries follows:

1. Cyprus
2. Denmark
3. Finland
4. France
5. Hungary
6. Ireland
7. Italy
8. The Netherlands
9. Norway

10. Poland
11. Portugal
12. Romania
13. Spain
14. Turkey

The list of observer countries follows:

1. Austria
2. Belgium
3. Germany
4. Greece
5. Sweden
6. United Kingdom

3. RDI programmes on board: The Logo Gallery

The RDI programmes addressing the Grand Challenge identified by this JPI are introduced below using their logos. Programmes are classified by JPI partner countries. If the programme does not have a logo, the logo of the programme owner and/or manager are presented instead. A complete description of these programmes can be found in Chapter 9 of this document.

Cyprus



THE CYPRUS
INSTITUTE



PLANNING BUREAU

Denmark



Danish Ministry
of the Environment

Finland

AKVA GROUP



METLA



MINISTRY OF AGRICULTURE AND FORESTRY

Ministry of Education and Culture
Opetus- ja kulttuuriministeriö Undervisnings- och kulturministeriet



France



Hungary



Ireland



ItalyThe NetherlandsNorwayPolandPortugal

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

RomaniaSpainTurkey

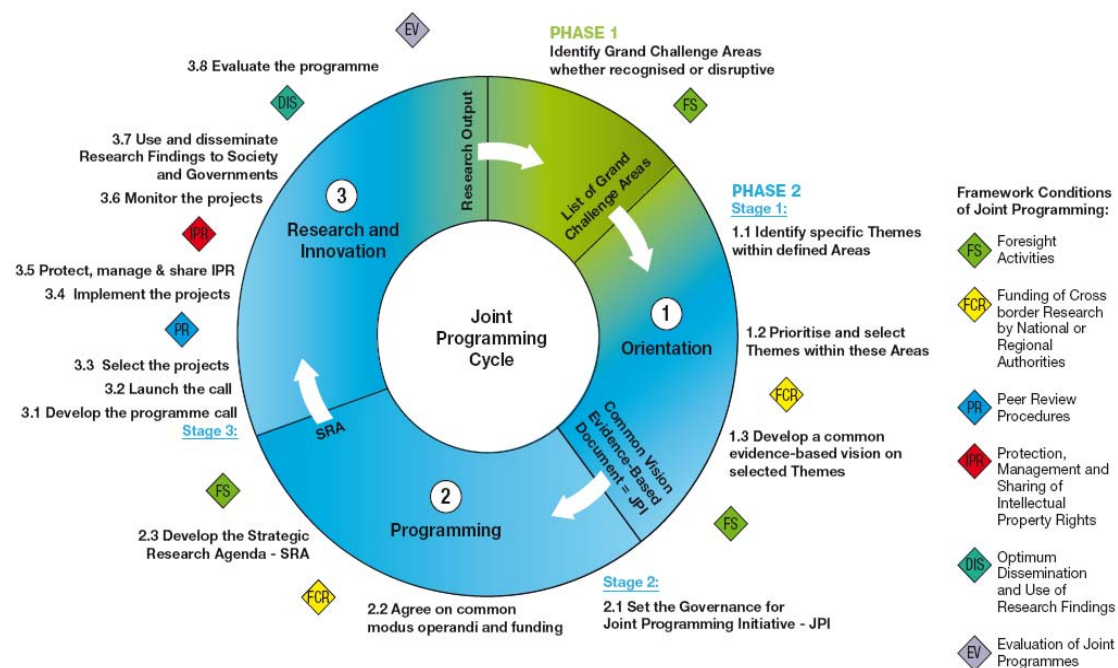
4. About this Joint Programming Initiative

Following the European Commission request for the implementation of [Joint Programming Initiatives](#), discussions started in 2008 to build a proposal around the Global Challenges related to water in Europe. Discussions involved a growing number of interested European countries, and bilateral contacts permitted to define the main RDI topics and activities.

An important Coordination Meeting was held in Brussels in April 6 and 7th, 2010, gathering representatives from eight Countries. This meeting served the purpose of establishing the main action lines for the JPI and building basic consensus on the topics. A template on the JPI was produced using the output of the meeting. This Template was submitted to the GPC in May 4th, and “*Water Challenges for a Changing World*” was identified as a new JPI theme.

During the summer of 2010 discussions progressed in preparation of the kick off meeting, which was held in Brussels in September 29th. Despite the Strike affecting flight control in Brussels, 33 representatives from 13 countries, plus the European Commission and the Water Supply and Sanitation Platform got together to implement an [agenda](#) containing items related to the vision, the governing structure and the work programme. The meeting [minutes](#) reflect the lively discussions which lead to the activities, plans and commitments described in the following sections of this document.

The current status of this JPI can be assessed using the Figure on the Joint Programming Cycle produced by the ESF:



Phase I was completed in 2010, and all activities under Stage 1 of Phase 2 have been completed. JPI implementation currently focuses on Stage 2 of Phase 2.

5. A Vision for Water Joint Programming¹

5.1 Water in a Changing World

5.1.1. Trends & Drivers

Water is fundamental for life, not only for direct consumption but also for sanitary requirements, and the production of food, basic industrial goods and commodities. According to the 2010 State of the Environment Report from the European Environment Agency (EEA, 2010 SOER²), Europe's freshwaters are affected by water scarcity, droughts, floods and physical modifications. Many water bodies are at risk of failing to meet the aim of the EU Water Framework Directive (WFD, EC, 2000³) to achieve good status by 2015. This was the case for 40 % of surface waters and 30 % of groundwaters in 2004. On the other hand, agricultural emissions and wastewater discharges continue to be prominent pressures with respect to ecological and chemical status (EC, 2007⁴). The continuing presence of a range of pollutants in a number of Europe's freshwaters threatens aquatic ecosystems and raises concerns for public health. The recent communication on Resource Efficient Europe (EC, 2011⁵) - within the "Europe 2020 Strategy" - calls for the coordination of European Policy and RDI actions (among others) leading to an improvement of water availability and quality.

Overexploitation of resources originates from **unbalances in water demand and availability**. The 2007 Communication of the European Commission on Water Scarcity & Droughts⁶ stated that water stress affects 130 million inhabitants (30% of population in Europe). Most of them are located in Southern Europe, but Northern countries such as Belgium, Denmark, Germany, Hungary and the United Kingdom suffer from similar problems.

The world population is projected to grow from 6.1 billion in 2000 to 8.9 billion in 2050, increasing therefore by 47 % (UN Report "World population to 2030"⁷). It is expected that the population will increase dramatically especially in urban and peri-urban areas. This will result in escalating demands for food and for water supply and sanitation services. This development does not only imply a greater need for agricultural and urban water and an increased capacity for discharge of pollutants. It also seriously impacts on water infrastructure.

¹ The Vision document can be downloaded as a stand alone document in [DOC](#) or [PDF](#) formats.

² <http://www.eea.europa.eu/soer>

³ EC, 2000. [Directive 2000/60/EC of The European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy.](#)

⁴ EC, 2007. [Towards sustainable water management in the European Union. Accompanying document to the Communication from the Commission to the European Parliament and the Council. First stage in the implementation of the Water Framework Directive.](#) 2000/60/EC, SEC(2007) 363.

⁵ EC, 2011. [A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy.](#) COM(2011) 21 final.

⁶ http://ec.europa.eu/environment/water/quantity/eu_action.htm#2007_com

⁷ <http://www.un.org/esa/population/publications/longrange2/WorldPop2300final.pdf>

International organizations such as the FAO have long warned about the water crisis hiding behind population growth and development⁸. Agricultural water use is more visible to society in irrigated areas, in which water is often scarce. However, rainfed agricultural systems are a relevant water sink even in temperate climates. FAO predicts more limitations to future world agriculture in water availability than in soil availability.

Urban areas around the world suffer from old and deteriorating water infrastructures that are vulnerable to failure due to aging, damage from excavations or over-loading. Leakage of water from supply systems in parts of Europe is substantial. According to the 2010 EEA State of the Environment Report⁹, in some parts of Europe, leakage rates are less than 10 % and close to what is technically and economically feasible. In other parts, however, water loss remains considerable (20% and more). Countries face major challenges in the **construction and maintenance of water-related infrastructure**. Investing in detection and repairing leaks is important. The World Business Council for Sustainable Development¹⁰ estimates that OECD nations need to invest at least 200 billion \$ per year to replace aging water infrastructure to guarantee supply, reduce leakage rates and protect water quality.

Increased urbanisation pressure pushes away agriculture, even from areas with high agronomical potential, but also provides opportunities for safe re-use of treated wastewater by peri-urban agriculture or landscape irrigation. As a result of soil sealing (e.g. more pavements), urbanization increases runoff. Reduced water infiltration in addition to groundwater depletion results in modified groundwater bodies (scarcity), rapidly changing river flows (floods) and the mobilisation of contaminants from point sources (2010 WssTP SRA Update¹¹).

Much of Europe is now connected to municipal systems supplying treated water under quality-controlled conditions. As a result, health problems are infrequent and mainly limited to the rare coincidence of water source contamination and a failure in the treatment process. However, in some rural areas of Europe drinking water is taken from wells and consumed without any purification. In 2008, ten out of twelve waterborne disease outbreaks reported in the EU were linked to the contamination of private wells (EFSA, 2010¹²). Worldwide it was estimated that over **880 million people use an unimproved drinking water source and 2.5 billion people are without improved sanitation** (2008, WHO & UNICEF¹³). About 90 % of diarrhoeal diseases are caused by unsafe water and sanitation, leading to the death of about 2.2 million people annually. In the European Region, the annual burden of diarrhoeal disease attributable to poor water quality, sanitation and hygiene in children aged 0–14 years is estimated at 13,548 deaths (5.3% of all deaths) and 31.5 disability-adjusted life years (DALYs) per 10,000 children¹⁴. Contaminated drinking-water is a frequent cause of diseases such as cholera, typhoid, viral hepatitis A and dysentery. Water may be contaminated with naturally occurring inorganic elements such as arsenic, radon or

⁸ [World agriculture. Towards 2015-2030. Summary report. 2002.](#)

⁹ <http://www.eea.europa.eu/soer/europe/water-resources-quantity-and-flows>

¹⁰ <http://www.wbcsd.org/DocRoot/ID1tMGiLZ7NL9mBOL2aQ/WaterFactsAndTrends-Update.pdf>

¹¹ <http://www.wsstp.eu/content/default.asp?PageId=911>

¹² <http://www.efsa.europa.eu/en/efsajournal/pub/1496.htm>

¹³ UNICEF & World Health Organization, "Progress on Drinking Water and Sanitation: Special Focus on Sanitation", 2008.

¹⁴ Study on environmental burden of disease in children: key findings. Copenhagen, WHO Regional Office for Europe, 2004 (Fact Sheet EURO/05/04) (<http://www.euro.who.int/document/mediacentre/fs0504e.pdf>, accessed 1 August 2009).

fluoride. Human activity may also cause water to become contaminated with substances such as lead, nitrates and pesticides.

While municipal wastewater treatment has increasingly been implemented across Europe, the process does not remove all pollutants. Household and industrial chemicals and pharmaceuticals – for example – are being detected in treated effluent that is subsequently discharged to surface waters. Finally water quality is currently threatened by emerging pollutants as a consequence of population growth and accelerated urban concentrations. These ***pollutants may have effects on human and ecosystems health.***

Structures such as dams for hydropower or water supply have resulted in significant hydro-morphological modifications – physical changes – to many of Europe's waters. Navigation activities and navigation infrastructure such as cross profile construction – dams, weirs, locks, impoundments, canalisation, straightening, bank reinforcement and deepening – are typically associated with a range of hydro-morphological changes with potential adverse ecological consequences.

Changing demands from people, society, industry and agriculture are only some of the many factors that will influence the water sector in the future. Climate change is projected to increase water shortages, with more frequent and severe droughts projected for many parts of Europe (e.g. in the Mediterranean region). Flood hazards are also projected to increase across much of Europe, particularly in its central, eastern and northern parts. Climate change will further exacerbate ecosystems' disturbance. ***Droughts and floods have a clear impact on the quality of European ecosystems.*** They result in a variety of societal losses which are not always evident or easy to evaluate. According to the EU Report "Water Scarcity and Drought", increased drought was observed in the past 30 years, affecting 100 million inhabitants (20% of European population) in four major events since 1989. The report concluded that in the past 30 years, drought events had a cost of 100 billion € to the European economy (8.7 billion € have been attributed to the drought of 2003 alone). An additional effect of flooding is the pollution of rivers and aquifers resulting from an increase in the load of pollutants washed from soils, more overflows in the sewer systems and the overflow of toxic waste sites. In deltaic areas, floods from the sea will turn fresh groundwater into brackish groundwater.

Future ***changes in land use are likely to also influence water quality.*** Agricultural irrigation requires massive amounts of water in temperate and semiarid climates, and consumes most of the used water through the process of crop evapotranspiration. This demand is often met by groundwater pumping. Some aquifers may compact when groundwater is depleted, resulting in permanent subsidence. In coastal areas, over-exploitation of aquifers can lead to salt-water intrusion and prolonged droughts. If this situation is combined with an unsustainable use of water, desertification may appear. In southern, central and eastern Europe, 8 % of the territory currently shows very high or high sensitivity to desertification, corresponding to about 14 million ha. If moderate sensitivity is included, more than 40 million ha are affected (Source: DISMED¹⁵, EEA 2010 SOER¹⁶).

¹⁵ Domingues, F. and Fons-Esteve, J., 2008. *Mapping sensitivity to desertification (DISMED Project)*. EEA-TC-LUSI. European Environment Agency, Copenhagen.

A paradigm change is currently developing in the world economy: **from a fossil fuel-economy towards a more bio-based economy**. In the years to come, biomass will become a key raw material for energy generation and the synthesis of bio-polymers. Biomass production will have a major effect on the water system. Intensive agriculture for the production of biofuels will increase the pressure on the water sector through higher agricultural water demand and aggravated phenomena of eutrophication, erosion and sedimentation. This is the case today in the Amazons, where rainforest is being replaced by fast-growing species like Eucalyptus. This transition will have its effect in European countries. The development of a bio-based economy in Europe will also have an impact on the availability of water for private consumers and industrial purposes. There is thus a need to strike a balance between the benefits of such policies (e.g. renewable energy and raw materials) and the impact on the ecological status of water bodies, adjacent land ecosystems and wetlands.

5.1.2. The Grand Water Challenge

The challenge:

**“Achieving Sustainable Water Systems
for a Sustainable Economy in Europe and Abroad”**

The grand challenge is to achieve sustainable water systems for a sustainable economy in Europe and abroad. This challenge is certainly very ambitious, as it addresses a number of issues of significant importance. Firstly, there is a growing gap between global water demand and water supply. The fast approaching bio-based economy will exert pressure to enlarge this gap. Secondly, with growing water demand and the discharge of waste water to the environment, our ecosystems will be threatened by overexploitation of water sources and increased pollution. Thirdly, climate change is expected to intensify drought in some areas and flooding in others. This will result in damage to the ecosystems and to society as a whole.

Addressing this challenge will require a **multi-disciplinary approach, since economic, ecological, technological and societal challenges** are to be addressed (Figure 5.1). The JPI will contribute to the challenge through coordination of National and Regional RDI policies and programmes.

Economic challenges. The European water market will have an estimated turnover in 2015 of 43 billion \$. The worldwide turnover will amount to 246 billion \$ (source: Global Water Intelligence Report 2011¹⁷). This figure includes pumping stations, filters, conveyance structures and related purification and sanitation equipment. The European water sector is of prime economic importance, as it offers jobs for thousands of citizens across Europe. Investments in water technology around the world increase every year, in a market which has become very competitive. The European water industry can benefit from this market, developing customized solutions for site-specific problems. To be competitive, investments in generating

¹⁶ <http://www.eea.europa.eu/soer>

¹⁷ <http://www.globalwaterintel.com/publications-guide/market-intelligence-reports/global-water-market-2011/>

knowledge and its valorisation are essential. In fact, the analysis of water technology deployment in the last decades permits to conclude that the risk of ineffective investments is high if the water system is not properly understood. To remain at the forefront of this competitive business, innovation skills are essential. The sector must and should enhance its capacity to cope with economical, demographic, behavioural and climatic changes.

Making Europe the most competitive water sector in the world, lending RDI support to the EU 2020 strategy¹⁸.



Figure 5.1. Drivers and multidisciplinary challenges to be addressed

Ecological challenges. The anthropogenic pressures and the degradation of biological integrity of ecosystems contribute to a large extent to the decrease of water resources. Overexploitation and degradation of the biotic structure alter ecosystem processes, decreasing ecosystem ability to provide resources to society. Ecological challenges include the preservation and protection of waters as a crucial asset for sustainable development. Significant examples of these challenges include:

- Increase of nutrient loads to lakes and streams, which can trigger the formation of toxic cyanobacterial blooms. The presence of these bacteria reduces water quality, increases the costs of water treatment, generates serious threats for human health and reduces the regional economic potential (i.e. ecosystem services such as biodiversity, tourism, recreation and landscape and aesthetical cultural values).
- Persistent inorganic and organic pollutants constitute a significant threat: these compounds tend to accumulate in the food chains and may affect fisheries and human health.

¹⁸ [The WssTP, in their Vision document](#). States that “By 2030 the European water sector is the leading centre of expertise for providing safe, clean and affordable water services while protecting nature. The sector applies a variety of new integrated approaches to solve diverse and interlinked problems. It uses efficient and sustainable technologies which enhance the social, economic and environmental well-being of the community as well as the health and well-being of the planet and its peoples”. This vision is fully endorsed by the JPI.

- Extreme events – such as droughts and floods – also have a clear impact on the health of European ecosystems (e.g. increased pollution, brackish groundwater, etc.).
- Anthropogenic morphological and land use changes and infrastructure works are a significant pressure factor on the ecological status of rivers and lakes.

Enhancing the absorbing and self-purification capacity of the landscape and water ecosystems to reduce the transfer and storage of pollutants. Maintaining and restoring biodiversity and ecosystem services.

Societal challenges. Access to water is a basic need. Its quantity and quality affect the health and well-being of citizens in Europe and abroad, and this is of course strongly related to economic strength. Raising awareness amongst water users is an important issue. For instance, European citizens need protection from new and emerging water pollutants. Sanitation needs to be extended and intensified, improving connections to centralized systems or implementation of decentralised systems and focusing on cities established near threatened water bodies. Water re-use and nutrient recovery from municipal, industrial and agricultural waste water offer economic advantages and societal gains. Society has an ambivalent relation with water resources. On the one hand, water is a natural resource necessary for societal well-being. If adequately managed, water fulfils a multitude of services and functions for a sustainable livelihood. These encompass domestic and economic services (such as drinking water, hygiene, food, production, recreation, industry and agriculture) and collective services and functions (such as energy and ecology). On the other hand, considering the current pressure, water can no longer be considered an unlimited public resource.

Providing each citizen with clean drinking water and proper sanitation. Securing protection from new and emerging water pollutants and from water hazards.

Technological challenges. The current development of water technology is insufficient to meet the grand challenge of achieving sustainable water systems. Consequently, major scientific and technological breakthroughs are needed in all areas of water use and management. Crossovers are required with related scientific fields, such as energy, sensors, nanotechnology and health. Significant examples of these challenges include:

- The growing concern about multi-resistant micro-organisms in European water bodies;
- The need to recover phosphate and nitrate fertilizers from wastewater;
- New technologies for drinking water technology and sanitation;
- The need for reduced energy input in all water processes, but particularly in desalination and water treatment. The prospects for energy co-generation in processes such as sewage treatment; and
- The deployment of information and communication technologies in water management.

These challenges will force science to explore integrated processes in order to develop new water sources reducing energy input in desalination processes and co-generating energy in processes such as sewage treatment. Specific innovations in monitoring technologies and developments in information systems and methodologies are required to address the complexity of water systems and water issues.

Ensuring adequate technology deployment in the water sector. Tearing down barriers between scientific fields and European countries to perform adequate technological brokerage.

5.2 A Common Vision towards Achieving Sustainable Water Systems

To meet the needs of a resource-efficient future, to sustain human and economic development, and to maintain the essential functions of our water ecosystems, an integrated approach to water resource management is needed. Full implementation of the WFD and other water policies will be required to reach good status by 2015. The EU 2020 Strategy and the European Commission's "Blueprint for safeguarding European waters", planned for 2012, will further promote sound water management.

Discussions among JPI partner & observer countries led to the identification of **four RDI Objectives**:

- Searching for a Sustainable Balance in the Ecosystem;
- Developing Healthier Water Systems for a Healthier Society;
- Preventing the Negative Effects of the Bio-based Economy on Water Systems; and
- Closing the Water Cycle Gap.

These objectives are in compliance with the EC document "Towards Joint programming in research"¹⁹. The interaction between the drivers and objectives is illustrated in Figure 5.2.

5.2.1. Searching for a Sustainable Balance in the Ecosystem

Analysing the influence of external factors on the water cycle is a requisite for ecosystem protection. When water is used or consumed, water is transported, treated and discharged to water bodies that can again serve as a source for water diversions. In order to achieve optimal water distribution and use without causing quantitative or qualitative overexploitation, an integrated and trans-disciplinary research approach is required. Relevant external factors include:

- Exhaustion, overexploitation and depletion of water resources by agriculture, citizens and industry;
- Pollution;
- Climate change, inducing short to long-term variations in water availability (including extreme events);

¹⁹ [Towards Joint Programming in Research: Working together to tackle common challenges more effectively](#). COM 2008, 468 final.

- Sea water intrusion; and
- Morphological changes / infrastructures and works on rivers and lakes.

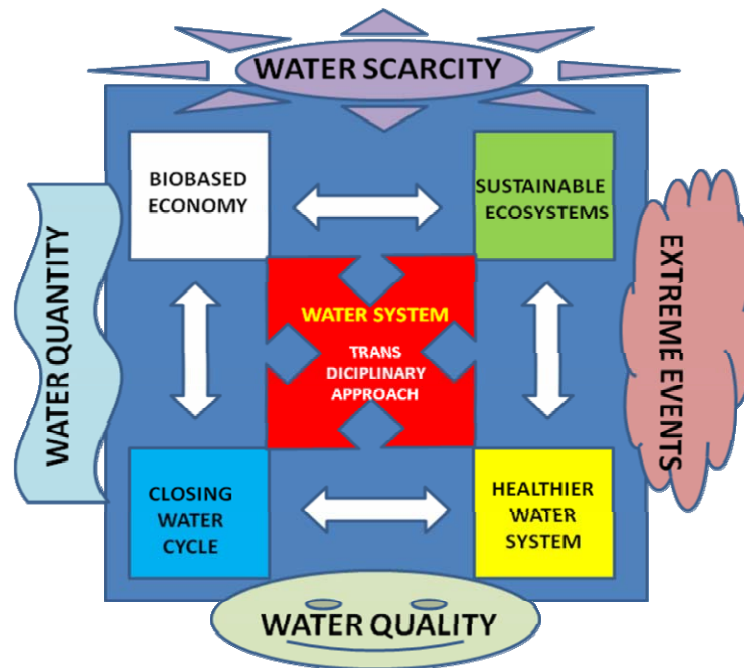


Figure 5.2. Interaction between the drivers and JPI Objectives to address the challenge of *Achieving Sustainable Water Systems*.

Meeting present and future demands concerning quality and quantity of water for different purposes (citizens, agriculture and industry) requires deeper knowledge in two major areas:

- The interactions between water and society; and
- Appropriate technological, organizational, restoration and management solutions to the variety of ecological, societal and economical alterations currently in process, and in which water plays a major role.

Pollutants are damaging the natural balance of European ecosystems. The development of new technologies for water treatment (e.g. membrane technology) and ecological engineering approaches will permit to retain/degrade certain pollutants and re-use them as raw material for fertilizers and industrial by-products. Climate change impacts on water resources such as increase of floods and droughts are threatening present ecosystems. This JPI aims at developing methodological tools, water treatment technologies, indicators and complex models for monitoring of threats, risk assessment and early warning. It is also envisaged to produce cause-effect and feedback analyses and to enhance and strengthen ecosystem resilience to stress with regards to human pressures. Additional actions will aim at integrating ecosystem regulation in the management process and at identifying systemic restoration solutions taking into account the good ecological status concept.

In order to achieve optimal water distribution and use without causing quantitative or qualitative overexploitation, an integrated and trans-disciplinary research approach is required.

Joint RDI is needed to ensure a sustainable water balance under the pressure exerted by external factors.

5.2.2. Developing Healthier Water Systems for a Healthier Society

Clean water is probably the world's best medicine. Water quality is currently threatened by emerging pollutants. New contaminants, like new pathogens and hormones, are threatening water quality and thus societal wellbeing. Key knowledge gaps remain including, for example:

- What are the (new) contaminants such as polar compounds, pharmaceuticals or new viruses?
- How can we predict their environmental behaviour and treatment (e.g. based on quantitative relationships between the chemical structure of substances and their activity, QSAR's) and what impact do they have on human health?
- To what extent are these (new) contaminants removed by natural processes in water and soil, or by physical techniques in drinking water treatment (e.g. ion exchange, membrane filtration, activated carbon filtration, zeolites, nanotechnology, UV technology and oxidative processes)?
- Have water chemistry and the biological stability of drinking water an effect on micro-organism growth (e.g., Legionella)?
- How can new water purification technologies be developed which maximize safety and minimize energy input?
- How can the quality of the produced water be maintained in the distribution system?
- Which health risks could result from new water (chain) concepts such as supply of hot water, cooling towers, water reuse and water in the city?

It is necessary to elucidate pollutant effects on human health and ecosystems, and to prevent the entrance of these contaminants in the water cycle. Achieving these goals (which directly derive from the WFD) requires a two-step strategy:

- Reduction of pollutants emission (water recirculation, clean technologies, new waste water treatment technologies); and
- Enhancement of the absorbing capacity and self-purification of the landscape and freshwater ecosystems.

The enhancement of ecosystem resilience is in turn based on three elements:

- Synthesis and progress of the research on modification of the water cycle in agricultural and urban areas;
- Developing RDI on the implementation of ecohydrology (using ecosystem processes as management tools, complementing technologies); and
- Developing trans-disciplinary RDI for systems approach in Integrated Water Resources Management (IWRM).

Joint RDI is needed to elucidate pollutant effects on human health and ecosystems, and to prevent the entrance of these contaminants in the water cycle.

5.2.3. Preventing the Negative Effects of the Bio-based Economy on Water Systems

The renewed EU Sustainable Development Strategy²⁰ reaffirms the strong political willingness from the EU to move into the sustainable path where environmental protection goes hand in hand with economic prosperity and social cohesion. The strategy defines Sustainable Consumption and Production, Climate Change and Clean Energy as being among the key challenges for Sustainable Development in Europe. In European terms, eco-innovation is a key development strategy and is regarded as a major opportunity for the EU economy.

The most obvious effect of the bio-based economy is the intensification of agriculture. This means that more pressure will be exerted on natural resources to increase production of food and biomass, intensifying the use of water and agrochemicals. Science and technology will be required to develop more efficient agricultural systems. However, the bio-based economy has not been fully deployed yet. As a consequence, joint RDI on this question will be timely to prevent and decrease its effects. The complete understanding of water abstraction effects on European ecosystems will be developed through joint research.

Joint DRI is needed to prevent and decrease the negative effects of the bio-based economy.

5.2.4. Closing the Water Cycle Gap

Europe cannot endlessly increase its water supply. Rather, it must continue to manage water demand. A growing scarcity of freshwater will emphasize the need of closing the water cycle gap by reconciling water supply and demand. This will require an integration of methods and measures to reach a unique goal: sustainable use of freshwater. Financial water issues need to be analysed for different uses and regions. The demand for closed water systems is obvious in arid areas, where RDI institutes are currently working on new concepts and technologies.

Water scarcity requires new integrated concepts related to water re-use, energy, recovery of valuable substances, monitoring and control, as well as to the interaction with natural resources. Current water distribution systems are far from being effective and efficient. Energy consumption is often extremely high. In specific networks, leakages may represent up to 50% of the water supply²¹. RDI will explore decentralised concepts designed for efficient water allocation and low carbon emissions. Additional research questions include:

- Impact studies on existing and new pilot areas;
- Conception and development of closed-loop concepts in industry;
- Land use planning in urban and rural areas; and
- Design of coupled water and energy saving strategies.

²⁰ Revised in 2009, <http://ec.europa.eu/environment/eussd/>

²¹ European Environmental Agency Indicators, 2003. <http://www.eea.europa.eu/data-and-maps/indicators>

This technological and environmental RDI must be systematically combined with a socio-economic approach that will investigate the questions of participation, behaviour and commitment of stakeholders. The costs and benefits of the different solutions (including environmental costs and benefits) must be systematically evaluated.

The concept of water foot-printing will be deepened, establishing practical methods and certifiable systems. Relevant research questions currently arise from this concept: What is the link between water foot-print and the ecosystem? To what extent will the water footprint of the bio-based economy compete with the water requirements of freshwater ecosystems? Besides the development of new reliable technologies (such as membrane technology), it is also necessary to investigate the use of new materials and concepts such as Management of Aquifer Recharge or Soil-Aquifer Treatment and to promote the recovery of raw materials from wastewater. RDI leading to the achievement of this objective will bring economic, societal and ecological advantages.

Joint RDI is required to address closing the water cycle gap and to deepen in the concept of water foot-printing.

5.3

Working together to tackle the Water challenges more effectively

Water knows no borders. This is particularly true in Europe, where most of the territory is occupied by our 72 transboundary watersheds (with the Danube watershed partly occupying 18 countries). In the WFD, the need is expressed to build a comprehensive and shared vision of the water system such as to bridge its technological, environmental, political and institutional organisation, while taking into account geographical, historical, social and economical perspectives. The WFD has introduced policies, decisions and actions aiming at achieving the principles of integrated management in the field of water resources and systems. Complete fulfilment of WFD goals remain uncertain mainly due to the difficulty to apprehend the intricacy and intertwining of geographical boundaries, spatial scales, differences in governance modes, institutional and cultural settings, stakeholders, activities, state of aquatic environment, evolution of water bodies and the related pressures.

5.3.1. Fragmentation of the European Water Sector

The European water sector is highly fragmented: water resources, water supply and wastewater have often been locally managed. There is a huge diversity of stakeholders, in terms of ways of action, dimension, interaction with water, or water related skills. ***This fragmentation is an obstacle for developing a research strategy for a sustainable and competitive water sector.*** RDI challenges and priorities are often defined in parallel (by regional or national entities). There are numerous RDI funding networks and organisations identifying key research questions and setting up Strategic Research Agendas.

These include, for example: networks such as the ERA-nets (in particular: CRUE ERAnet; IWRMnet, Snowman, Splash, CIRCLE & CIRCLE2, SKEP, ECO-Innova, Seas-ERA); other transnational (regional) funding networks such as EUREKA (business

oriented), with in particular AQUEAU; EU Funding: Framework Programme (FP), LIFE+, COST; Technology Platforms: Water Supply and Sanitation Technology Platform (WssTP), European Technology Platform for Sustainable Chemistry (SusChem); the WFD Common Implementation Strategy Groups, with in particular the activity on Science-Policy Interface; European Environment Agency; EC Directorate-General Environment; European Water Association; European Water Partnership; WISE-RTD association; EurAqua institutes network; etc. This list is not exhaustive. Common funding activities have often remained very small-scaled. In addition, synergies between the different ERANets and other research funding networks dealing with water topics have been limited, inhibiting the establishment of a coherent water RDI framework within the European Research Area. This JPI will not just add a new piece in this puzzle. It will coordinate the existing pieces and ease integration of efforts.

5.3.2. The International Scene

Our non-European partners – both traditional (US, Japan) and emerging (China, India, etc.) – are launching large-scale targeted RDI programmes and are setting up effective collaborations (see Table 5.1 for the situation of the RDI systems in Europe, the USA and Japan).

Table 5.1. Comparison of selected indicators of the RDI systems between EU-25, US and Japan. Notes: ^{a)} 2003 for EU-25, 2004 for USA and Japan; ^{b)} 2004 for EU-25; 2002 for USA; 2003 for Japan; ^{c)} Triadic patents are filed at the European Patent Office (EPO), the United States Patent and Trademark Office (USPTO) and the Japan Patent Office (JPO), for the same invention, by the same applicant or inventor. Data obtained from EUROSTAT, OECD and DG Research and Innovation.

Concept	EU-25	USA	Japan
R&D intensity (% of GDP) (2004)	1.86	2.66	3.18
Share of R&D financed by industry (%) ^(a)	54.8	63.7	74.8
Researchers (FTE) per thousand labour force ^(b)	5.5	9.1	10.1
Share of world scientific publications (%) (2003)	38.3	31.3	9.6
Scientific publications per million population (2003)	639	809	569
Share of world triadic patents ^(c) (%) (2000)	31.5	34.3	26.9
Triadic patents per million population (2000)	30.5	53.1	92.6
High-tech exports (% of total manufacturing exports) (2003)	19.7	28.5	26.5
Share of world high-tech exports (%) (2003)	16.7	19.5	10.6

RDI activities are performed at universities, research institutes and in water technology companies to develop innovative water technologies. While excellent research has been carried out throughout Europe, this has not been sufficiently transferred to relevant stakeholders, i.e. utilities, public authorities or industry.

Additionally, if Europe is to achieve a balanced and sustainable development and economic growth, Europe not only needs to invest more in RDI, but also needs to invest in improved coordination and harmonisation of research activities. Coordination of Strategic Research Agendas will improve the competitiveness of the water sector.

A stronger, more coordinated and coherent European response is needed to meet the identified water challenges, where appropriate in collaboration with partners outside the European Research Area.

5.3.3. Water Joint Programming in the European context

Joint Programming is about tackling common European major societal challenges by combining national RDI efforts in a strategic and effective way and thereby making better use of Europe's limited public resources. In the wake of the global financial and economic crisis the need to ensure efficiency and effectiveness in the spending of public funds has become an even bigger imperative.

Addressing the Grand Water Challenge requires a long-lasting, large-base RDI approach taking into account the great diversity characterizing water quality issues and management practices in Europe. The proposed JPI will facilitate synergies and complementarities of current EU, national and regional initiatives. This JPI will not only fight against duplications, it will also build on the benefits arising from the diversity of water issues in European countries, allowing for intercomparisons and ensuring a wider applicability of its outcomes and achievements.

An active policy on common water RDI in Europe will result in a strong and coordinated, scientific and economic position in the global water sector on the protection and value of water. This will be of mutual benefit and interest, and will be transferable to the rest of the world. Additionally, this can also contribute to meet the needs of developing countries. The need for cooperation in water is not only motivated by efficiency and impact. Water issues lend themselves for cooperation between countries in an almost natural way: rivers, droughts and pollution do not respect political boundaries.

With the **Europe 2020 Strategy**, the Commission proposed to the Member States a comprehensive and long-term partnership for addressing together major societal challenges. In the conclusions of its meeting of 4 February 2011, the European Council endorsed the Commission's proposal for an Innovation Union²², and launched the European Innovation Partnerships. Europe's expertise and resources must be mobilized in a coherent manner. Synergies between the EU and the Member States must be fostered in order to ensure that innovations with a societal benefit reach the market quickly. This JPI will become one of the building bricks of the "**Water Efficient Europe**" innovation partnership.

Close cooperation with the **Water Supply and Sanitation Technology Platform** (WssTP) is essential for bringing knowledge to the market. WssTP was promoted by the European Commission to improve efficiency and financial opportunities in the water sector. This Technology Platform is led by industries in collaboration with academics, RDI organisations and water users. The European industry is very well represented in WssTP, which is equally committed to meet global challenges and regional demands ensuring water and sanitation services, and to make significant and measurable contributions to the Millennium Development Goals. The different nature of the JPI and WssTP will result in complementarities which will be exploited in both

²² [Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Europe 2020 Flagship Initiative. Innovation Union. EC\(2010\) 1161](#)

directions. The JPI will guide the production of knowledge to the bottlenecks and areas of societal interest identified by WssTP (among other stakeholders). As a consequence:

- WssTP's role is to voice industry needs, guiding research and development to innovations.
- The JPI's role is to harmonise national public RDI programmes, so that updated, ambitious, realistic, challenging and problem-solving objectives and research topics are investigated.

Starting from coherent Strategic Research Agendas is essential to exploit complementarities. While the JPI focuses on public-public cooperation, the WssTP explores complex interactions between public and private agents. Additionally, most of the programmes making part of this JPI focus on Research, with strong interests in development and innovation. Complementarily, WssTP focuses on innovation, although it treasures relevant research and development capacities. The WssTP and this JPI commit to cooperate to build a strong “Water Efficient Europe” innovation partnership.

The nature of a JPI is similar to that of **ERA-NETs** in a number of aspects. The past and present water ERA-NETs have established RDI networks in which European researchers and funding agencies have harmonized procedures and jointly managed coordinated research projects, thus setting the scene for this JPI. ERA-NETs have overcome a number of legal and practical barriers, succeeding in setting up common proposal submission and evaluation procedures. The experience gathered through the ERA-NETs will be useful to implement effective water JPI governance, but also to foresee frontier research activities in the water field. Two recently completed ERA-NETs were directly related to this JPI:

- The **IWRM** ERA-NET (18 RDI agencies, 14 countries), focused on IWRM to sustain the WFD needs
- The **CRUE** ERA-NET (23 RDI agencies, 12 countries) structured the area of European Flood Research.

The JPI has established fruitful contacts with both ERA-NETs to plan for continuity and transition.

Additional ERA-NETs partially relate to this JPI. **SNOWMAN** (7 RDI agencies, 7 countries, completed) dealt with sustainable soil and groundwater management under the stress of pollution. Continuing the effort of CIRCLE 1, **CIRCLE 2** (20 RDI agencies, 17 countries) performs activities focusing on the adaptation to Climate Change, giving consideration to water scarcity and extreme events such as droughts. **BIODIVERSA 2** (21 RDI agencies, 15 countries) keeps among its priorities the wide economic and societal impacts resulting from the ecosystems degradation.

Technological and ecological solutions are an imperative condition, but do not represent a sufficient condition. Research is also needed in societal aspects such as governance and behavioural sciences. Joint Programming is meant to tackle grand societal challenges and it is therefore crucial that its DRI results feed directly into the **policy making process**. There is a need for strengthening the dialogue between policy-makers and researchers in order to maximise the policy-making impact of research projects. Close linkages with **CIS Science Policy Interface** will be crucial. In addition, there is scope for enhanced synergies between **ESFRI** and the JPI in relation

to infrastructures that could be supportive to the societal challenges being addressed (e.g. EMSO, EUROARGO and LIFEWATCH).

Water RDI is related to a number of relevant European research actions. JPIs are not an exception. Links to other **JPIs** exploring water related issues will be established.

5.3.4. Added Value of the Joint Programming Initiative

The challenges identified in this JPI **cannot be fully addressed by any individual partner country alone**. Although the National and Framework Programmes have provided relevant funding to European water RDI, the wide variety of situations and issues to be tackled and their complex dimension have limited the deployment of successful technologies and policies. The Water JPI provides an opportunity for economies of scale, larger critical mass of resources and for enhanced cross-border programme collaboration. This JPI will permit to widen up the scope of European proposals, and increase the impact of research by exploiting the multiplying effect of trans-national & multi-disciplinary cooperation in Europe and beyond.

The following list presents a summary of the **benefits of the proposed JPI to European citizens and European competitiveness**:

- Development of scientific, technological, economic and societal tools fostering efficiency in water management, internalization of externalities and sustainable water management practices;
- Raising the technological profile of the water industry (which employs a growing number of European citizens), in synergy with the WssTP actions. A knowledge-based European water industry will increase its leadership in the world market;
- Improving the current information on water resources availability, demand, and vulnerability to present risks and uncertainties;
- Improving adaptation to drought, desertification and flooding risks. Developing mitigation measures. Increasing the sustainability and resilience of water related activities;
- Protecting the health of European citizens (water-related issues) and of aquatic ecosystems;
- Raising awareness on the effects of different societal activities on water demand, use, quality and availability;
- Extending water availability through the optimization of water uses (both consumptive and non consumptive), the reduction of treatment costs, and the improvement of water quality;
- Establishing opportunities for increased cross-border Scientific and Technological co- operation in Europe and beyond;
- Sharing knowledge and pooling resources among European researchers and policy makers; and
- Training and development (increased RDI capacity and capability).

The water JPI will produce science-based knowledge leading to **support and advice to European policies**, comprising the identification of problems, their quantification, and the development of technical and managerial solutions. All these aspects will lead to European policies promoting better life standards for European citizens. The water JPI will also have the capacity to focus on local and regional scale problems, where the transfer from research to policy is more effective. The research questions identified in

this document will permit to support the implementation and revision of key EU Directives, as well as to prepare new water-related EU policy documents. In addition to providing the knowledge-base essential to policy formulation, this JPI will provide support to the Member States in their efforts to implement EC Directives and to the associated countries to implement their national Laws.

The JPI has been designed to be **sensitive to national, regional and municipal water problems**, thus responding to the large variability in European water issues. While the Framework Program has traditionally focused on a problem-solving approach, all aspects of water science and technology (from basic to pre-competitive; from industrial to sociological) will be targeted in the water JPI. Hundreds of RTD initiatives have been funded by the **Framework Programme** dealing with the multiple aspects of water. Integrated Water Management and Water Policy have been the subject of projects focusing on Europe or on International Cooperation activities. A JPI on water RDI will result in more opportunities for European scientists, technologists and engineers to participate in European research endeavours.

Among the **scientific benefits of the JPI**, four have a clear European dimension:

- Promoting cooperation and exchange between scientific researchers. The percentage of **scientific publications authored from more than one European Country** on the topics of this JPI has increased from 1.4 % to 4.7 % in the last 15 years. Despite this clear progress, scientific cooperation on water issues in Europe remains surprisingly low.
- Design, build and share **large research and development facilities** (i.e., experimental treatment plants).
- Create, maintain and co-operatively exploit **networks of open-field experiments and scientific observatory systems** (i.e., experimental watersheds).
- **Multiply the scientific impact of European Research**, increasing its relevance and scientific leadership.

This JPI will target **citizen well-being and personal development** in Europe and beyond. RDI actions to be adopted in the JPI will be required to demonstrate their contribution to improve the life of the citizens in urban and rural communities, in more and less developed regions, from the young to the senior citizens, and with respect for gender issues. Water is known for being at the centre of social conflicts which have historically hurt citizens in Europe and beyond. Water JPI actions will also be encouraged to focus on social agreement and on conflict resolution. Mediation and advocacy in water issues will be promoted at all levels to ensure that RDI activities are clearly perceived as contributing to improve the life of the citizens in all its dimensions.

Last, but not least, the knowledge generated produced by this JPI will serve the purpose of **reinforcing Europe in the international context**. Significant impacts can be envisaged in the scientific and water policy communities, as well as in developing countries:

- The **current European leadership in water RDI** will be reinforced. In the period 2006-2010, Europe produced 29 % of the world publications in the topic of this JPI. The USA ranked second, with 26 %. Fifteen years ago (1991-1995), the situation was reversed, with the USA leading (37 %) and Europe taking second place (18 %).
- The JPI will establish **bilateral contacts with major public RDI funding organizations in developed and emerging countries**, in order to further

coordinate public water RDI activities. Such contacts have indeed already started, with participation at the Workshop and Conference held in India in November 2010. These events paved the way for the upcoming co-ordinated and co-financed call for proposals in the field of water between the EU Framework Programme and India.

- The water management model implemented in Europe through the WFD will be analysed from the RDI perspective, and will be disseminated to the world as a **European contribution to water management**. Scientific evaluations of water status and its socioeconomic implications will be performed and demonstrated in a coordinated fashion.
- The **European Union Water Initiative** (EUWI)²³ was launched to create the conditions for mobilising all available human and financial EU resources, aiming at achieving the water-related Millennium Development Goals (MDGs)²⁴ (particularly the one devoted to “*Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation*”). The EUWI reinforces the political commitment and influences Poverty Reduction Strategies and allocation of resources. Efforts to achieve the MDGs embrace planning and action in both water resources development and management. Water JPI actions devoted to training and mobility, together with dissemination, will play a fundamental role to support the EUWI, since they are being designed with an International Scientific Cooperation perspective.

Only by building on existing resources, better pooling our efforts, focusing on excellence, and by creating an efficient and fully integrated European Research Area in the field of water, will we be able to tackle the grand challenge facing Europe’s waters.

²³ <http://www.euwi.net/>

²⁴ <http://www.un.org/millenniumgoals/>

6. Designing and Implementing a Governance Structure

6.1 The Governing Board

6.1.1. *Characteristics*

The Governing Board (GB) deals exclusively with water-related JPI policy issues; its strategic decisions are based on advice provided by the Stakeholders Advisory Group and the Scientific Board.

Its roles and functions include:

- To draft the short and long term strategy;
- To approve contributions from Partner Countries;
- To approve accession of new countries to the JPI;
- To adopt the Terms of Reference;
- To adopt the composition of the other boards;
- To adopt and resolve calls for proposals; and
- To implement the guidelines for Framework Conditions.

It is composed by at least one representative per Partner Country. It comprises a President, a Vice-president and members. The European Commission acts as a non-voting member.

6.1.2. *Implementation*

The GB has not yet met. The first meeting of the GB has been scheduled for April 14, 2001. This first meeting will:

- Review the activities of the Executive Board and the Coordinating team;
- Adopt the JPI structure, nominate the members of the Advisory Board;
- Adopt the Vision Document; and
- Outline a Work Programme for the rest of 2011 and plan activities for 2012.

6.2 The Executive Board

6.2.1. *Characteristics*

The Executive Board (EB) implements the strategy defined and issued by the GB, to which the Executive Board is subordinated.

Its roles and functions include:

- To draft the implementation plan for the strategy elaborated by the Governing Board;
- To set the dates for calls for proposals and draft the Guides for proposers for each call;
- To draft specific regulations for project evaluation and monitoring;
- To run the financial management of the program; and
- To coordinate the Forward Looking Activities (FLA), the programme RDI activities (calls for proposals), the assessment of JPI impact, the training activities, and the dissemination of results.

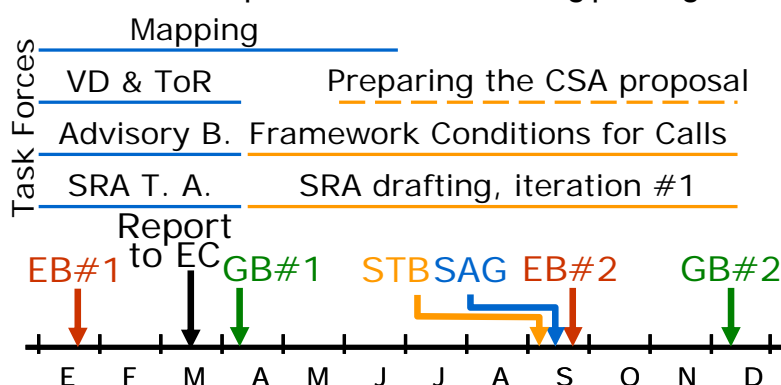
It is composed by one representative per Partner Country. It comprises a President, a Vice-president and members. The President of the Executive Board is the JPI Coordinator.

6.2.2. Implementation

The EB met for the first time in January 19, 2011. The meeting addressed an ambitious [agenda](#), in which JPI progress was assessed based on discussions led by the Coordination and by the leaders of the Task Forces.

Four Task Forces were created after the Kick Off Meeting: 1) Mapping Public National Water RDI; 2) the Vision Document; 3) selection procedures for the members of the Advisory Board; and 4) the Thematic Analysis phase of the Strategic Research Agenda.

The Coordination introduced a discussion on the upcoming meeting of the Governing Board and on envisaged tentative activities till the end of 2011 (subjected to approval by the GB). These activities are presented in the following planning:



Three of the four Task Forces will cease activities shortly after the publication of this document. Only the Mapping Task Force is scheduled to continue till the end of June 2011. Two new Task Forces will start after the first meeting of the GB on The discussion of the [Framework Conditions](#) for calls for proposals, and on the first iteration of the drafting of the Strategic Research Agenda. If a call for proposals opens for a Coordination and Support Action on this JPI, a specific Task Force will start operation in June.

Presentations by the European Commission and by the Water Supply and Sanitation Technology Platform completed the agenda. The meeting [minutes](#) and [presentations](#) are available for consultation.

6.3

The Advisory Board**6.3.1. Characteristics**

The Advisory Board will give advice to the GB on respective priorities. It will be composed of two bodies:

The Scientific and Technological Board (STB)

Its purpose is:

- To provide input to the GB from a scientific and technological perspective;
- To define scientific topics in synergy to those mentioned by the European Commission within each Working Program of the theme Environment (including Climate Change) of the Cooperation Specific Program within the Framework Programme and by the Partner States;
- To propose these topics to the GB for approval, in close relation with the Strategic Research Agendas (SRA) defined at the Partners States and at the EU; and
- To organize the evaluation procedures.

Its roles and functions include:

- To inform on the scientific and technological issues expressed by stakeholders from an Academia/Industry perspective; and
- To propose the JPI long term strategy.

It is composed by Academia and Industry experts conducting RDI in the JPI field. It comprises a President, a Vice-president and members.

The Stakeholders Advisory Group (SAG)

Its purpose is:

- To provide input to the GB from the user perspective. Stakeholders will represent the water industry, local/national policy makers, users, NGOs, etc.; and
- To define urgent RDI needs in synergy with those mentioned by the European Commission within each Working Program of the Framework Programme and by the Member States and the Associated countries.

Its roles and functions include:

- To provide and assess scientific issues expressed by Scientific Board from users' perspective; and
- To propose the JPI short term strategy.

It is composed by one representative per selected institution.

6.3.2. Implementation

The specific Task Force has called for nomination of candidates from partner countries. Up to three candidates to the STB and two candidates for the SAG could be presented. Current nominations add up to 29 for the STB and 12 for the SAG.

The Advisory Board will be created in the first meeting of the Governing Board. The EB adopted a resolution on the composition of both boards: *“The EB envisages about 10-20 members for the STB and about 10 members for the SAG. During this interim period, new members will have the chance to nominate candidates for the AG. Board members should be renewed every two years, with the provision to extend the mandate to some of the initial members so as to avoid a complete renewal of the board.”*

The STB and the SAB are tentatively scheduled to meet for the first time in September 2011, immediately before the second meeting of the EB. These meetings will serve the purposes of selecting the respective Presidents and Vice-presidents, and will produce a report on the Vision Document and a document on prospective joint calls for proposals.

6.4 The Secretariat

Subordinated to the EB, the Secretariat ensures technical support for the GB and the AB (Scientific Board and Stakeholders Advisory Group), taking care of the administrative implementation of JPI internal instruments. It is composed by Technical staff.

During this interim phase of JPI implementation, MICINN is providing Secretariat, with persons deployed in Madrid and Brussels.

7. First Steps Towards a Strategic Research Agenda

The Strategic Research Agenda (SRA) of the Water JPI will establish the main directions and the required activities of the envisioned JPI. In particular, the document will outline the priority RDI areas, strategic topics to be addressed, the main deliverables and the desired impacts. The first phase in the definition of the SRA – the Thematic Analysis – is currently being developed, and will be presented to the Governing Board in April 14th. The first complete iteration on the SRA drafting will be presented to the second meeting of the Governing Board, tentatively scheduled for December 2011. Specific milestones and actions have been established in order to ensure that the needed information is available for the drafting of the Strategic Research Agenda. The thematic analysis phase consists on gathering and analysing information on:

- National RDI Priorities;
- European RDI Priorities;
- Priorities proposed by international organizations and other RDI institutions; and
- Priorities deriving from the Vision Document.

A three-step approach has been implemented: 1) Collecting information; 2) Identifying the thematic priorities of these initiatives in water RDI; and 3) Performing a final analysis of the priority themes. The first step has been completed and is presented below.

A number of European initiatives relevant to the Water JPI in terms of their mission and strategy were identified. The most relevant information, such as objectives, aims and the specific RDI topics was compiled. Eight European Initiatives were identified as relevant to the work of the JPI Water. Their strategies and Research Agendas were closely examined to extract the main topics they focus on. A similar compilation of information and the identification of RDI topics was carried out on the national level. The necessary information was provided by ten Partner Countries with different levels of detail.

The Table below lists the sixteen topics which were identified and examined on the basis of the aforementioned European and National Research Agendas. The identification of the topics was primarily guided by the objectives defined at the Vision Document. An additional was set on the different types of water users, and the related impacts on water quantity and quality. This Task Force will identify overlap areas between individual National, European and International initiatives, and will signal RDI areas which are not adequately covered.

TOPICS	Water JPI	INITIATIVES							NATIONAL STRATEGIES									
		ERA-NETs	CIS SPI	WssTP	WFD	FACCE JPI	FP7	EU 2020	TR	FR	DK	NO	BE	FI	IE	IT	NE	CY
Water quantity & scarcity	✓	✓	✓	✓						✓			✓	✓	✓		✓	✓
Bio-based economy	✓					✓	✓										✓	
Sustainable water manage.	✓	✓	✓	✓	✓		✓	✓	✓			✓		✓	✓	✓	✓	✓
Waste-water treatment					✓		✓		✓	✓	✓	✓			✓		✓	✓
Water foot-printing	✓														✓			
Water quality & pollution	✓		✓		✓		✓		✓	✓	✓	✓			✓	✓	✓	
New contaminants	✓		✓							✓					✓			
Water & health	✓				✓		✓			✓					✓		✓	
Impacts of climate change	✓	✓	✓	✓	✓	✓		✓		✓	✓		✓	✓				
Extreme weather & climate		✓		✓	✓	✓			✓				✓			✓		✓
Water policy			✓		✓			✓				✓		✓	✓			
Agricult. water use	✓		✓	✓	✓	✓	✓		✓					✓				✓
Industrial water use	✓			✓	✓									✓				
Urban water use				✓						✓	✓					✓	✓	✓
Water & energy					✓		✓	✓								✓	✓	
Aquatic ecosystems										✓		✓						

8. Communication Strategy

Since the beginning of this JPI, an effort was made to communicate progress internally and externally. As an indicator of this activity, suffice to say that we have generated 4,000 Emails, with an overall storage volume of 0.8 Gb. Communication has been directed to the partners and observers on one side, and to the rest of the European groups of interest on water. Some activities have also addressed scientific interests beyond Europe.

8.1 Internal Communication

The internal communication strategy has been supported by a document repository and a monthly newsletter.

The **document repository** is available for [consultation](#), and is used to store and share all the information produced by the task forces and the coordination team regarding the JPI documents and the meetings.

Monthly **Newsletters** have been published since November 1st 2010 in order to energize internal communication and to update partners on the JPI process, the activities and the upcoming meetings. The newsletters have also been stored at the document repository. Five Issues are currently available ([#1](#), [#2](#), [#3](#), [#4](#) and [#5](#)).



8.2 External Communication

The JPI has participated in a number of events National and International events, where our nature, interests and plans for the future have been communicated to diverse audiences. A few International examples are presented below.

- The **WssTP Stakeholders Event** (Brussels, [June 1st, 2010](#)). An event gathering different types of stakeholders, which will meet for the fourth time in May 18th, 2011.
- The **CIS-SPI Event** (Brussels, [September 30th, 2010](#)). This event was organized by the Common Implementation Strategy “Science Policy Interface group”. The European commission and the French Organization ONEMA (JPI partner) organized this event.
- The **JPI Event under Belgium Presidency** (Brussels, [October 18th, 2010](#)). A major JPI event, opened up new perspectives on JPI implementation.
- The **CRUE ERA-NET Midterm Meeting** (Madrid, [October 20, 2010](#)). The JPI addressed this ERA-NET meeting to discuss possibilities of cooperation in the field of extreme events (floods).
- The **Europe-India Conference and Workshop** on RDI cooperation in Water (Bangalore and Delhi, [November 9, 2010](#)). Joint RDI opportunities were explored. European RDI was represented by the European Commission, National Authorities of the Member States, the WssTP, the European Water Partnership, the JPI and individual researchers (public and private).
- The **IWRM-NET Final Conference** ([Brussels, December 1st, 2010](#)). The JPI addressed this ERA-NET meeting to discuss possibilities of cooperation in the field of Integrated Water Resources Management.

9. Mapping National Public Water RDI in Europe

9.1 A procedure for the mapping of National public water RDI funding

This mapping exercise consisted of three steps: a) a mapping survey; b) an estimation procedure based on public water research, development and innovation funding observations and statistical country indicators; and c) the elaboration of country summary reports.

9.1.1. Mapping Survey

The Mapping survey was prepared using a questionnaire which covers quantitative and qualitative information on water-related RDI programmes. The questionnaire ([view the questionnaire](#)) was generated following the review of similar initiatives carried out previously (e.g. CRUE ERAnet; IWRMnet, etc.). The survey targeted RDI programmes. The initial scope of the survey encompassed competitive research funding and was widened at a later stage to include information on “institutional” funding also. A sample survey can be viewed by clicking [here](#).

The survey contains four main sections including:

- **Information on RDI Programmes & Programme Owners:** This section included details of funding organisation, research programme and programme owner & manager. A historical track of previous RDI programmes in the country was requested.
- **Water RDI Priorities** covered by the programme: A few questions addressed the objectives and main drivers of the RDI programme. The user had to describe the objectives related to the water research and where relevant those related to non-water research. Water related programme objectives were compared to the four research objectives of the Water JPI (Bio-based Economy, Sustainable Ecosystems, Healthier Water Systems, and Closing the Water Cycle Gap).
- **Funding Information on the programmes:** A section on financial information contained questions about the size of the programme, the number of funded projects, the duration of the funding period, and the total funding. These questions referred both to the overall programme and to water-related projects. A minimum project funding of 10,000 € was used to concentrate on sizeable projects. Specific questions were used to investigate the nature of fund recipients (individual researchers, universities, research institutes, innovation agents, the industry...).

- **Information on International Cooperation:** The last questions were used to assess the international character of the programme. The possibility of funding foreign organizations and allocating fund to transnational activities was investigated. The prospects for using different international funding schemes (common pot, virtual common pot or mixed mode) were also evaluated.

This mapping survey was implemented [on line](#), and the link was disseminated in a first step to all partners and observers. In a second step, the survey was sent to the rest of Member States and Associated States through their GPC representatives. A total of 45 surveys were received from 15 countries. The reports were analysed in order to illustrate water RDI in each country and to produce a general picture of water research in the ERA. Where required, clarifications were sought.

It is worth noting that surveyed RDI programmes had a different lifespan (i.e. different start & end dates). In some surveys, the Total Water Budget was provided for the full duration of a programme or since the start of a programme. In such cases, Total Water Budget (expressed as Million € / year) was estimated taking into account the duration of the programme. In addition, the online survey was initially designed for “competitive research funding” and the scope was extended at a later stage to include institutional research. Therefore, for some countries, the Total Water Budget (expressed as Million € / year) may be underestimated as “Institutional” Research Funding was not included.

9.1.2. Estimating National Public Water RDI Funding Investments in Europe

Despite the ample coverage of the survey turnout, only 15 countries were covered. This was judged insufficient, since 40 countries currently fall into the categories of Member States and Associated countries. Additionally, for some countries, the survey coverage was known to be partial (i.e. only a limited number of the existing research programmes were represented).

As a consequence, a statistical procedure was devised to obtain different estimates of National public water RDI funding in Europe (Member States, Associated Countries, the ERA, JPI members, JPI observers...) using the existing limited information. The procedure was used on two pillars:

- I. Identifying countries in which the surveys had revealed the complete picture of RDI funding. These countries were used for model training. They were:
 - a. Cyprus
 - b. Denmark
 - c. Finland
 - d. France
 - e. Ireland
 - f. Italy
 - g. Norway
 - h. Poland
 - i. Portugal
 - j. Spain

- k. Switzerland
 - l. The Netherlands
 - m. Turkey
2. Collect statistical indicators for all countries:
- a. The Gross Domestic Product for 2010, obtained from [International Monetary Fund](#) (IMF) data.
 - b. The percent of RTD to country GDP, obtained from the [Organization for Economic Co-operation and Development](#) (OECD) [country statistical profiles](#). Data corresponded to 2008.
 - c. The country population, as published at the same OECD report

For the countries used for model training, the population weighed average percentage of public funded water RDI to total RTD investment was determined to be 0.120 %. This ratio was used to estimate public funded water RDI for the rest of countries (not surveyed or partially surveyed). This method produced funding figures for each country (resulting from surveys or estimated).

9.1.3. Future Mapping Actions

This first-stage of the Mapping Water RDI exercise aimed at identifying relevant research programmes in the field of Water and providing information on funding in this area. It is proposed to pursue this exercise with (1) widening the extent of the online survey ensuring full coverage of all research programmes using a more-targeted approach based on the programmes identified via the Country summaries and inclusion of the surveys submitted via email on the online database; (2) more in-depth surveys collecting information on call procedures and project management, projects etc. The aim is to generate a “research programme database” which will be an online, up-to-date and dynamic tool for the JPI (i.e. the online survey will be left open allowing for the entry of new surveys & existing information can be accessed to allow programmes to edit their details, etc.).

Economic models of research organisations, as well as economic models of research funding processes, can differ widely between countries and even within each country. So does the percentage of funding towards the total cost of research, or reversely the percentage of core budgets spent on water RDI. In some countries, specific funding programs may represent quite less than 50% of the total financial budget on water RDI.

9.1.4. Country Summary Reports

The final step consisted on the preparation of a Country summary report. A sample report is reproduced as a figure for convenience:

The parts of the Country summary report are:

a → **ES** Spain JPI Partner, EU Member State, Surveyed Funding: 156 M€/yr

b ←

c ←

d →

e ←

f ←

Survey Summary results (per survey)

- National Programme for Fundamental Research**
 - Total declared funding (M€/year): 130
 - Average duration of projects (months): 26
 - Average budget of projects (M€): 115
- Innovation programme: INFACTO and Technolo:Platforme**
 - Total declared funding (M€/year): 26
 - Average duration of projects (months): 36

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarized results of full programme):
 - Industrial economic: high
 - Sustainable economic: high
 - Healthier water systems: high
 - Closing water cycle gap: high
- Possible to find brain commission? No
- Possible to allocate fund 3000000000 programmes? Not for the specified programme, although some activities have been accomplished through the ERA-NET scheme.

a. Country name and acronym.

b. Country status regarding the European Union and this JPI, total surveyed public RDI funding.

c. Logo of the relevant programmes acting in the country. Programme owner and manager institutions may appear too, depending on the country organization.

d. Body of the Country Summary Report, discussing the programmes, their owners and managers, their significance to the JPI

activities and the nature of the funding and fund recipients. Different degrees of completeness can be observed in the Country summary reports.

- e. Fiche devoted to the RDI programmes for which surveys were completed. If the survey was produced through the on-line procedure (most of the cases), a link is presented to the completed survey (Excel export in PDF format). Selected quantitative information is presented at this fiche: total water RDI funding, average project duration and average project funding. This information is only presented when, at least, a survey was produced.
- f. Fiche devoted to the Country orientation towards JPI participation. The fiche presents the match between the research programme priorities and JPI objectives, and the prospects for programme internationalization. This information is only presented when, at least, a survey was produced.

The body of the Country summary report was produced from different sources:

- The surveys, if available
- Previous mapping exercises performed by the water ERANETs. In this sense, particular attention was paid to the [CRUISE](#) database, produced by the [CRUE](#) ERANET.
- Internet sources. These were unspecific, although two sources revealed particularly interesting: the [CORDIS ERAWatch](#) database and the [WssTP section on Water Research in Europe](#). These sources were referenced at the Country summary reports when relevant.

9.2 National Public Water RDI Funding Investments in Europe

The results of the estimation of European Public National water RDI are presented in the following Table:

Study Target	Group of Countries	National Public Water RDI funding (M€)	Percentage of funding respect to MS+AC (%)
Europe	Member States (MS)	338	94
	Associated Countries (AC)	20	6
	MS + AC	358	100
JPI	Partners	185	52
	Observers	151	42
	Partners + Observers	336	94

The current mobilisation obtained by JPI partners represents 51 % of the estimated funding in Member States + Associated Countries. Partners + Observers represent 94 % of the research funding in the ERA (MS+AC).

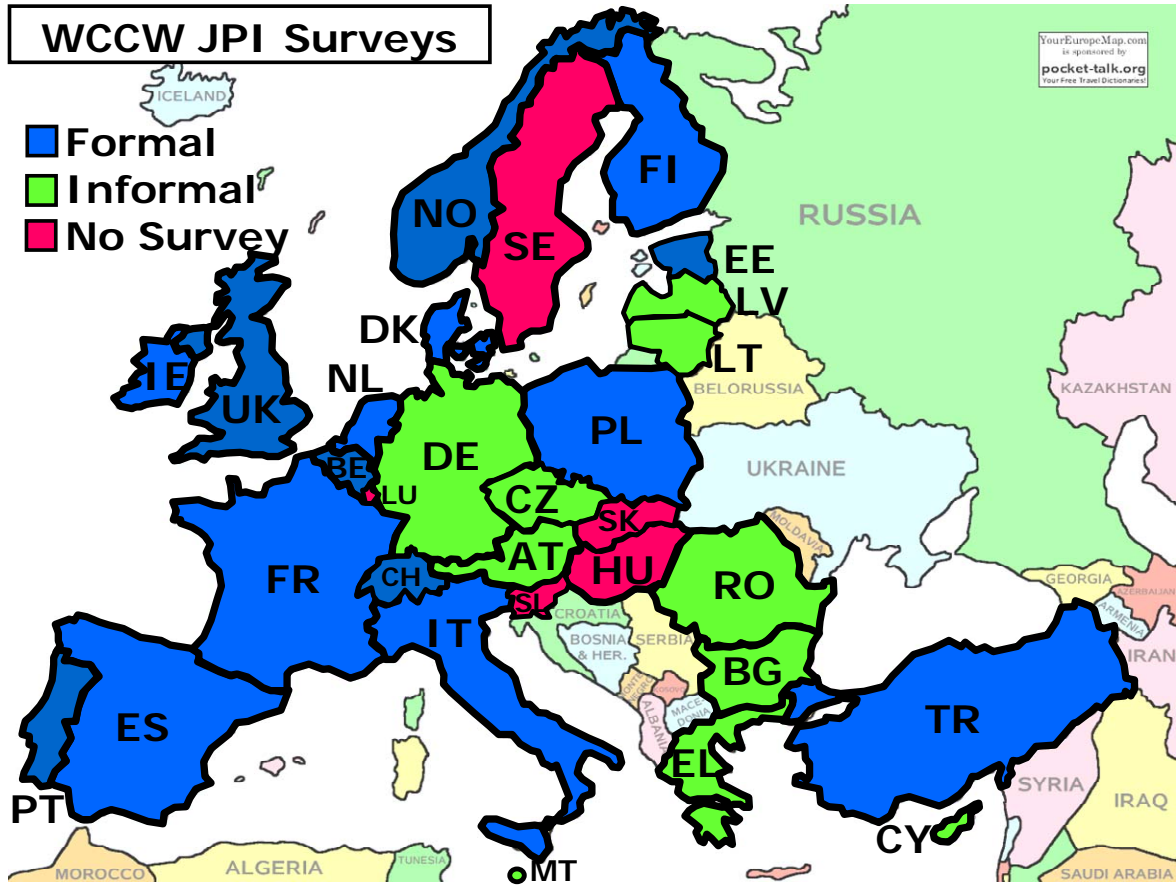
9.3 Country Summary Reports

In this section, summary reports are presented for different types of countries:

- JPI partners (14 countries)
- JPI observers (6)
- Rest of the EU Member States (9)
- Other Associated Countries submitting surveys (1)

These countries are presented in the following map, classified according to their response to the survey request:

- Formal survey submitted ([View the Web Report of all surveys submitted online](#)) ;
- Informal survey submitted;
- No survey submission.



	JPI Partner, EU Member State, Surveyed Funding: 0.60 M€/yr		
	 THE CYPRUS INSTITUTE	 Research Promotion Foundation	 

The [Planning Bureau of Cyprus](#) is the Governmental Office in charge of promoting and coordinating economic and social growth of Cyprus. The Planning Bureau is the primary agency responsible for research planning in Cyprus, developing and following the implementation of a medium- to long-term development strategy. The Strategic Development Plan 2007-2013 sets out the strategic policy for research in Cyprus.

The Planning Bureau's main objectives also include the formulation of a policy on the development of foreign technical assistance as well as the economic cooperation with other countries. Structural funds are also used to co-finance programs and projects with the EU aiming at sustainable economic growth.

The Planning Bureau sets the budget for the [Research Promotion Foundation](#), of Cyprus (RPF), which is the main research funding agency in Cyprus. The Foundation's core objective is the promotion of scientific and technological research and innovation in Cyprus and uses the Strategic Development Plan of the Planning Bureau as a guideline for its funding strategy. It provides funding for the implementation of research and technological development projects as well as promotes the participation of Cypriot research organisations in European research programmes. These aims are directly relevant to the JPI Water goals for water research projects in Europe.

The Research Promotion Foundation develops and monitors competitive programmes, and issues Calls for Proposals, whereby the related funds come from the Cyprus government budget. The Call for Proposals under the National Framework Programme for Research, Technological Development and Innovation 2009-2010 accepts projects proposals under three Thematic Areas: Terrestrial Ecosystems, Pollution Prevention and Control, and Water Ecosystems. Two Sub-topics are directly related to this JPI: a) Climate change and impacts on water ecosystems; and b) Integrated management and sustainable use of water resources, improvement of procedures for water allocation, preservation of water resources, water recycling for multiple use, suppression of water evaporation from water dams.

The [Water Development Department](#) is a government body responsible for implementing the water policy of the Ministry of Agriculture, Natural Resources and Environment in Cyprus. Its main objective is the rational development and management of the water resources of Cyprus, and its responsibilities include:



- the collection, processing and classification of hydrological, hydrogeological, geotechnical and other data necessary for the study, maintenance and safety of the water development works
- the study, design, construction, operation and maintenance of works, such as dams, ponds, irrigation, domestic water supply and sewerage schemes, water treatment works, sewage treatment and desalination plants, and
- the protection of water resources from pollution.

Survey Summary Results (per survey)

- Research Promotion Foundation
 - Total declared funding (M€/year): 0.6
 - Average duration of a project (months): 24-36
 - Average budget of a project (k€): 150

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: Low
 - Sustainable ecosystems: Medium
 - Healthier water systems: High
 - Closing water cycle gap: High
- Possible to fund foreign organizations? Yes
- Possible to allocate funds to Transnational programmes? Yes

DK Denmark	JPI Partner, EU Member State, Surveyed Funding: 11.45 M€/yr	
	 Danish Agency for Science Technology and Innovation Ministry of Science Technology and Innovation	 Danish Ministry of the Environment

The [Danish Council for Strategic Research](#) seeks to ensure that strategic research in Denmark is organised to meet the challenges facing Danish society. The aim is to ensure Denmark's position as a global frontrunner regarding welfare, wealth and science in the short and long term. The Council aims at strengthening the interaction between publicly financed research and the rest of society, such as privately financed research, private organisations, public institutions and the corporate world. The Council supports politically prioritized and thematically defined research. In 2010 the Council contributed 134 M €. The Council is involved in a number of international networks, such as: All JPI's (except Cultural Heritage, which is administrated by the Danish Council for Independent Research) The BONUS-programme (research cooperation within the Baltic-sea region), and Nordforsk (research cooperation within the Nordic Countries) The Council is also involved in a number of ERA-nets, and is currently involved in the preparation of new proposals. The research programme related to this JPI is the "[Programme Commission on Sustainable Energy and Environment](#)". The programme addresses a wide range of topics, of which some are related to water. The Council allocates specific funds to international cooperation.









The [Danish Ministry of the Environment](#) is responsible for administrative and research tasks in the areas of environmental protection and planning. At the regional and local levels, much of the administrative responsibility has been delegated to municipalities. The Ministry consists of three agencies and several independent Environment Centres across the country. One independent appeal board is also linked to the Ministry. The Danish Environmental Protection Agency is responsible for implementation of the [Danish Action Plan on Ecoinnovation](#) (2010-2011). This programme addresses water research, but also air pollution, waste management and natural resources research. The programme focuses on the development, testing and demonstration of technology. Important programme drivers include relevant legislation and environmental challenges. In the field of water, research highlights include: detection of drinking water quality and pollution, efficient industrial water treatment, municipal wastewater Management and extreme rainfall events.

Survey Summary Results (per survey)

- [Programme Commission on Sustainable Energy and Environment](#)
 - Total declared funding on water issues (M€/year): 9.25
 - Average duration of a project (months): 57
 - Average budget of a project (k€): 2,000
- [Danish Action Plan on Ecoinnovation](#)
 - Total declared funding on water issues (M€/year): 2.20
 - Average duration of a project (months): 18
 - Average budget of a project (k€): 85

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: high
 - Sustainable ecosystems: medium
 - Healthier water systems: medium
 - Closing water cycle gap: medium
- Possible to fund foreign organizations? Yes
- Possible to allocate funds to Transnational programmes? Yes

	JPI Partner, EU Member State, Surveyed Funding: 31.9 M€/yr	
	 ACADEMY OF FINLAND	 Sustainable management of aquatic resources
FI Finland	Ministry of Education and Culture Opetus- ja kulttuuriministeriö Undervisnings- och kulturministeriet	
	 TEKES	 Water
	TEKES Water Programme	
	 mmm.fi MINISTRY OF AGRICULTURE AND FORE	 METLA Forest Research Institute
	 SYKE	 VTT Technical Research Center

There is a [wide range of funding bodies for water science in Finland](#), mostly ultimately governmental. Funds can be divided into those provided by core budgets for Institutes and Universities and those provided through competition. The central funding body for research beyond core government funding in the area of water research is the [Academy of Finland](#).

The Academy of Finland, operating within the administrative sector of the [Ministry of Education](#) and funded through the state budget, covers all scientific disciplines in its four Research Councils, which are as follows: Biosciences and Environment, Culture and Society, Natural Sciences and Engineering, and Health. Water issues are related to all four Research Councils. The Academy funds research annually, with 340 million euros (2011), accounting for 16 % of government R&D spending.

The Academy of Finland's mission is to finance high-quality scientific research, act as a science and science policy expert, and strengthen the position of science and research. Through its research programmes, the Academy of Finland directs research and allocates research funding to fields that are considered of key importance in terms of science and society. The Academy's research programmes are designed to advance a certain field of research, raise its scientific standards, and create new scientific knowledge and know-how. A major emphasis in Academy research programmes is on multidisciplinary and transdisciplinarity, as well as international cooperation. In 2011 the Academy in funding 12 research programmes, and four more programmes are under preparation. A research programme initiative on [Sustainable Management of Aquatic Resources](#) is under preparation to be launched at the autumn 2011.

[Tekes](#), the Finnish Funding Agency for Technology and Innovation, has a minor role in funding fundamental research in aquatic sciences. Nonetheless, Tekes funds applied research for innovations in environmental field e.g. projects concerning development of detectors and telemetry for environmental purposes. Tekes promotes a broad-based view on innovation: besides funding technological breakthroughs, Tekes emphasises the significance of service-related, design, business, and social innovations. When funding challenging R&D and business development, Tekes works with the top innovative companies and research units in Finland. Every year, Tekes finances some 1,500 business research and development projects, and almost 600 public research projects at universities, research institutes and polytechnics. Research, development and innovation funding is targeted to projects that create in the long-term the greatest benefits for the economy and society. Tekes runs a [Water Program](#).

Other Ministries and research institutions in Finland fund water research e.g., in governmental research institutes directly relating to their activities and policies:

- [Ministry of Agriculture and Forestry](#) (MMM) is responsible for the [Finnish Forest Research Institute](#), and funds the Water Friendly Agriculture programme
- [Ministry of Environment](#) (YM) is responsible for the [Finnish Environment Institute](#)
- The [Technical Research Centre of Finland](#) (VTT) is planning a programme on water.

Survey Summary Results (per survey)

- [The Academy of Finland, running: sustainable management of aquatic resources](#)
 - Total declared funding on water issues (M€/year): 10
 - Average duration of a project (months): 48
 - Average budget of a project (k€): 10
- [TEKES: Water Programme](#)
 - Total declared funding on water issues (M€/year): 18
 - Average duration of a project (months): 24
 - Average budget of a project (k€): 90
- [The Ministry of Agriculture and Forestry of Finland: Water Friendly Agriculture](#)
 - Total declared funding on water issues (M€/year): 3.24
 - Average budget of a project (k€): 3,240
- [The Finnish Forest Research Institute \(METLA\): Prediction and mitigation of nutrient and sediment load from forested catchments](#)
 - Total declared funding on water issues (M€/year): 0.70
 - Webpage: <http://www.metla.fi/hanke/3506/index-en.htm>
 - Average duration of a project (months): 48
 - Average budget of a project (k€): 700
- [The Finnish Environment Institute \(SYKE\): Research Programme on Baltic Sea, freshwaters and water resources](#)
 - Total declared funding on water issues (M€/year):
 - Average duration of a project (months): 37
 - Average budget of a project (k€): 7794 k€
- [VTT Technical Research Centre of Finland: Green Solutions for Water and Waste](#)
 - Total declared funding on water issues (M€/year):
 - Average duration of a project (months): 36 (planned)
 - Average budget of a project (k€): 1200k€/year

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: Medium
 - Sustainable ecosystems: High
 - Healthier water systems: High
 - Closing water cycle gap: Medium
- Possible to fund foreign organizations? In some programmes
- Possible to allocate funds to Transnational programmes? In some programmes

FR France	JPI Partner, EU Member State, Surveyed Funding: 22 M€/yr	
		

Twelve French scientific research players have joined forces to found a national research alliance for the environment, [AllEnvi](#), which now also comprises fifteen associate members. AllEnvi is the fourth such alliance created in France, after those for health (Aviesan), energy (Ancre) and digital technologies (Allistene), and its main objective is to ensure better synergy, both within metropolitan France and in the French overseas regions, between research players working on scientific issues relating to food, water, climate and territories. Global change does not only mean the climate, but also the environment, access to water, food, and sustainable agriculture. The existence of a strong, coordinated research sector working on these environmental questions is vital in finding solutions in line with the magnitude of the stakes. AllEnvi will associate all the research and higher education players concerned, reinforce cooperation between members as well as cooperation with other stakeholders, while submitting its priorities to the government and French and European funding agencies, and will be proposing the common research platforms required in many fields of knowledge. Current AllEnvi partners hire a huge percentage of the public scientific manpower dedicated to environmental sciences. The fields covered by AllEnvi include all aspects concerning water resources, aquatic ecosystems, continental coastal and sea, and the uses of these resources and ecosystems.

[Onema](#), the French National Agency for Water and Aquatic Environments, is active in the field of environmental French public service. Created by the Law on water and aquatic environments, dated 30 December 2006, and the implementation decree dated 25 March 2007, it operates under the supervision of the ministry in charge of ecology and sustainable development. Onema organises and produces high-level science and technology advice to assist in formulating, implementing and evaluating public water policy. Its mission is to contribute to overall and sustainable management of water resources and aquatic ecosystems, with a view to restoring water quality and reaching the good chemical and ecological status by 2015 set by the European Water framework directive, adopted on 23 October 2000. The Agency also plays an active role in transferring scientific outputs, methods and tools, to practitioners. ONEMA is co-leading with EU DG RTD, the “Science-Policy Interface” ad hoc activity established under the auspices of the Common Implementation Strategy of the Water Framework Directive (CIS-SPI). The main goal of the activity is to ensure a dynamic interface to identify research needs and to boost usability of available (or to be produced) results to support the implementation of the WFD within the CIS framework. ONEMA is a member of the Member States Mirror Group of the WSSTP and participates in the Scientific Committee of ACQUEAU. Research priorities include: 1) Water cycle and resource availability in the context of climate change; 2) Physical dynamics of aquatic systems and restoration; 3) Biological and ecological dynamics of aquatic systems; 4) Chemical contaminants and ecotoxicological risks; 5) Environmental technologies and methods to reduce pollution; and 6) Socio-economic value of water and aquatic environments.

The [ANR](#) (French National Research Agency) is a research funding organisation. The Agency was established by the French government in 2005 to fund research projects, based on competitive schemes giving researchers the best opportunities to realize their projects and paving the way for groundbreaking new knowledge. The role of the Agency is to bring more flexibility to the French research system, foster new dynamics and devise cutting edge-strategies for acquiring new knowledge. By identifying priority areas and fostering public-private collaborations, the ANR also aims at enhancing the general level of competitiveness of both the French research system and the French economy. The ANR’s approach to funding allows French research to reinforce its international position and better integrate the framework of European cooperation. ANR funds are available in all scientific fields, for both fundamental and industrial research and for public research organisations as well as private companies (through public/private partnerships). ANR’s general goal is to fund excellent research, while also facilitating innovation and interdisciplinary work and developing European and international collaborations.

Survey Summary Results (per survey)
<ul style="list-style-type: none"> • ONEMA, Office National de l'eau et des milieux aquatiques <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): 10 ○ Average duration of a project (months): 36 ○ Average budget of a project (k€): 120 • ANR, Agence National de la Recherche <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): 12 ○ Average duration of a project (months): - ○ Average budget of a project (k€): -
Country orientation towards JPI participation
<ul style="list-style-type: none"> • Country orientation to JPI objectives (summarizing results of all programmes): <ul style="list-style-type: none"> ○ Bio-based economy: medium ○ Sustainable ecosystems: high ○ Healthier water systems: high ○ Closing water cycle gap: high • Possible to fund foreign organizations? (general position for all programmes, with answers such as: no, yes, in specific programmes, in most programmes): No • Possible to allocate funds to Transnational programmes? (general position for all programmes no, yes, in specific programmes, in most programmes): Yes



The Science, Technology and Innovation (STI) strategy (2007-2013) of the Government of Hungary has the the general objective of making Hungary's economy driven by knowledge and innovation on the mid-term, and to ensure that Hungarian companies display competitive products and services on the international market. The mid-term objectives include:

- To expand research and development activities of enterprises.
- To create internationally renowned R&D and innovation centres and research universities.
- To create a market of knowledge based on competition and the recognition of performance through the globalization and industrialization of generating and disseminating new knowledge.

Basic and applied research, development, and innovation rely on two cooperating funding agencies in Hungary: The Hungarian Scientific Research Fund and the National Innovation Office.

The [Hungarian Scientific Research Fund](#) (OTKA) has been the major funding agency of basic science and scholarship since 1986. OTKA operates as an independent non-profit organisation since 1991. Its legal status and rules of operation have been designed to provide independent support to scientific research activities and infrastructure, to promote scientific achievements of international standards, and to provide assistance to young researchers. As an independent institution, OTKA reports to the parliament and the government of Hungary. With regards to the funds provided within the annual budget of the Republic of Hungary, the appropriations of OTKA are administered via the budget of the [Hungarian Academy of Sciences](#), operating as Programme owner. During the two decades of its operation, OTKA has supported approximately fifteen thousand research projects with an overall funding worth 218 M€. OTKA's annual budget for 2008 was about 20 M€. It covers the annual financial support of around two thousand research projects (two to four years of duration each), with three hundred to four hundred new research projects starting every year. OTKA administers two rounds of open calls for proposals with a bottom-up approach towards research proposals, postdoctoral research proposals, and proposals for international cooperation every year. The agency operates without thematic restrictions and with a special emphasis on the careers of talented young researchers and on the reintegration of Hungarian researchers returning from postdoctoral trainings or research projects carried out abroad.

The [National Innovation Office](#) (NIH) is the research, development and innovation organization of the Hungarian Government. They provide professional support for private and government initiatives aiming to exploit and promote the market access of national R&D results. To this end the have created a team of analysts and information management experts. NIH supports national and international cooperation, and creates incentives for the formation of innovation networks. The National Innovation Office represents Hungary at the EU and at international organisations in issues relating to research and innovation. NIH does not have a specific programme for water, but has funded a number of projects on the topic. Additionally, the NIH president has identified Water Challenge as a major research priority, calling for integrated transnational cooperation on R&D for the Danube region.



The [Environmental Protection Agency](#) (EPA) is an independent public body. Its mission is to promote and implement the highest practicable standards of environmental protection and management that embrace the principles of sustainable and balanced development. The main responsibilities of the EPA include:

- Monitoring and reporting on quality of environment;
- License and regulation of industries, waste disposal operations and large fuel storage installations;
- Implementation and enforcement of regulations on the use and release of GMOs; and
- Funding & co-ordination of environmental research.

Through its [research programme](#) (*STRIVE Research Programme 2007-2013*), the EPA will provide approximately €100m funding for environmental research and development to colleges, research organisations and private companies over the period 2007-2013. Research is funded under three main areas: Climate Change, Water and Sustainable Environment. The Water Research is mainly policy-driven. The previous research programme was the ERTDI Programme 2000-2006 with an EPA Research Commitments of €55m. The EPA has participated in a number of ERA-Net projects. These include: SKEP (FP6), ENVHEALTH ERA net (FP7), CIRCLE2 (FP7) and CIRCLE (FP6), and ECO-INNOVERAnet (FP7) The EPA is also involved in the JPI Connecting Climate Knowledge for Europe (CliK'EU).

The [Irish Research Council for Science, Engineering & Technology](#) (IRCSET) operates multi-million euro research funding initiatives which support talented researchers in their early stage career formation across Masters, Doctoral and Postdoctoral levels in the sciences, engineering and technology. The emphasis of the funding programmes is on exploratory research aimed at yielding new concepts, findings and innovations within Ireland. IRCSET runs several research programmes, which are looking at basic research and development in science, engineering and technology; and are not only limited to Water-related research activities. These programmes are driven by research interests and existing knowledge base of applicant pool of graduates and provide funding towards research projects:

- [Embark Initiative](#) (Total Budget of Programme: 120 M€ since 01/12/2001);
- [Empower Initiative](#): (Total Budget of Programme: 15 M€ since 01/12/2002);

- [Inspire Initiative](#): (Total Budget of Programme: 10.2 M€ for the period: 01/09/2009 – 31/12/2012).

In addition, IRCSET is involved a number of activities at European level, including European Research Area Networks (ERA-NETs) and the European Science Foundation.

[Science Foundation Ireland](#) (SFI) was established in 2000 as the national foundation for research in Ireland. SFI invests in academic researchers and research teams who are most likely to generate new knowledge, leading edge technologies and competitive enterprises in the fields of science and engineering underpinning three areas: Biotechnology; Information & Communications Technology (ICT) and Sustainable Energy & Energy Efficient Technologies (Energy). SFI's mission is to build and strengthen scientific and engineering research and its infrastructure in the areas of greatest strategic value to Ireland's long-term competitiveness and development. The *Research Frontiers & Principal Investigator Programmes* cover all areas of science, engineering and mathematics - Their key drivers are to generate new knowledge, leading edge technologies and competitive enterprises. It is funding Research projects (Universities) – The total budget of the Programme is about 573 M€ in *Principal Investigator Programme* since 2002; and about 156 M€ in [Research Frontiers Programme Programme](#) since 2004. SFI is on the Management Board of JPI on Neurodegeneration and A Healthy diet for a Healthy Life. SFI is NCP for NanoSci-E+ ERANET and SIINN ERANET.

[Enterprise Ireland](#) is the Government agency in Ireland responsible for supporting Irish businesses in the manufacturing and internationally traded service sectors. Specifically, Enterprise Ireland helps businesses to start-up, innovate and ultimately, to achieve global success. Via its [Commercialisation fund - Proof of Concept & Technology Development](#), it funds water-related research and other areas including ICT, Life-Sciences, Bio and Industrial Technologies. Other priorities of the programme include product development. It is providing funding toward applied research. Its annual budget is of approximately €10 million per annum (varying). This is a national fund only providing funding for Demonstration & Research projects to Universities & Research Institutions. The previous relevant programme was ATRP - Advanced Technology Research programme. Enterprise Ireland has a role on several ERA-nets across Europe of strategic importance.

The [Department of Agriculture, Fisheries and Food](#) (DAFF) is a Government Department, which administers three competitive research programmes: Food Institutional Research Measure (FIRM), Research Stimulus Fund (RSF) and COFORD (Competitive Forest Research for Development). The [Research Stimulus Fund](#) (RSF) covers water-related research as well as Climate change, Agri-Economy, Animal Biosciences, Plant Biosciences related activities. It provides funding for research projects to Universities & Research Institutions. DAFF is leading Ireland's involvement in the Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE). It is also involved in "A healthy diet for a Healthy life" JPI and a number of ERA-Nets including Wood Wisdom and Core Organic. The RSF total budget is estimated at 43.5 M€ since 2005.

The [Geological Survey of Ireland](#) (GSI), Department of Communications, Energy and Natural Resources (DCENR), is Ireland's National Earth Science Agency. It is responsible for providing geological advice and information, and for the acquisition of data for this purpose. GSI produces a range of products including maps, reports and databases. The [Griffith Geoscience Research Award Programme](#) provides funding towards water-related research activities and also towards marine and coastal, petroleum, geophysics related research. It is mainly driven by the WFD and aims at developing models for the behaviour of groundwater, including the impacts of climate change and intensifying infrastructure on future groundwater supplies. It provides funding for research projects to Universities & Research Institutions. Its total budget is of about 10 M€ since 01/06/2007.

The [Marine Institute](#) is the national agency responsible for Marine Research, Technology Development and Innovation (RTDI) with the following role: "to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to research and development that, in the opinion of the Institute, will promote economic development and create employment and protect the marine environment". Via its [Marine Research Sub-Programme](#) (*National Development Plan 2007-2013*), it funds research related to Water (e.g. Advanced Marine Technologies (with freshwater applications); Freshwater catchment management - in relation to management of migratory fish species (salmon & eel) and their habitats) and Marine-related research activities. It provides funding to Universities, Research Institutions and Private Sector towards Demonstration, Dissemination and Research projects. It is policy-driven (Water Framework Directive Marine Strategy Framework Directive Habitats & Birds Directives) and the Marine Institute is a partner on the SEAS-ERA (Era-Net) Project, inputting (via DAFF) into the Food & Health JPI and inputting directly into the Oceans JPI.

[Teagasc](#) is the agriculture and food development authority in Ireland. Its mission is to support science-based innovation in the agri-food sector and the broader bioeconomy that will underpin profitability, competitiveness and sustainability. Via the [Teagasc Walsh Fellowship Scheme](#), it funds research in relation to Crops, Environment and Land Use Research; Grassland and Animal Research; Rural Economics and Development Research; Food Research. The main drivers of its water –related research activities are the Nitrates Directive and National Nitrates Action Plan; Water Framework Directive and River Basin District Management Plans; Habitat Directive and National Biodiversity Plan. The annual budget for this programme is of: € 2.4 million per annum. Teagasc is involved in the JPI on Agriculture, food security and climate change; FP7, INTERREG and COST projects. It is the Irish Representative to European Soil Bureau Network (JRC).

The [Office of Public Works](#) (OPW) is the lead State body in Ireland for Flood Risk Management. It has a number of important roles including co-ordinating activities of Government Departments, Local Authorities and other bodies and managing the implementation of the national flood risk management policy. The Government decided in late 2008 to transfer the Coastal Zone Management Division from the Department of Agriculture, Fisheries & Food to the OPW. Via its *Flood Studies Update Programme 2005-2012* aims at producing methodologies for the estimation of design Flows and Design Rainfall. Its total budget is €2 million for the FULL Programme towards Dissemination & Research projects awarded to Universities, Research Institutions & Private Sector. The OPW is actively involved in the ERA-Net CRUE second funding initiative for collaborative research projects.

Survey Summary Results (per survey)

- [Environmental Protection Agency: STRIVE Research Programme 2007-2013](#)
 - Total declared estimated Water Research funding (M€/year): 3.52
 - Average duration of a project (months): variable (9 – 60 months)
 - Average budget of a project (k€): variable (50 - 1,000 +)
- [Irish Research Council for Science, Engineering & Technology Embark Initiative](#)
 - Total declared Water Research funding (M€/year): est. 0.096 (960,000 € since 01/12/2001)
 - Average duration of a project (months): 24
 - Average budget of a project (k€): 48
- [Irish Research Council for Science, Engineering & Technology Empower Initiative](#)
 - Total declared Water Research funding (M€/year): est. 0.08 (630,000 € since 01/12/2002)
 - Average duration of a project (months): 24
 - Average budget of a project (k€): 90
- [Irish Research Council for Science, Engineering & Technology Inspire Initiative](#)
 - Total declared Water Research funding (M€/year): est. 0.21 (684,000 € million for the period: 01/09/2009 – 31/12/2012)
 - Average duration of a project (months): 24
 - Average budget of a project (k€): 90
- [Science Foundation Ireland Research Frontiers Programme](#)
 - Total declared Water Research funding (M€/year): est. 0.62 (3.4 M€ RFP since 2004 & 1.2 M€ PI since 2002)
 - Average duration of a project (months): 36-48 months
 - Average budget of a project (k€): RFP total avg. budget per project 192 k€; PI total avg. budget per project 624 k€
- [Enterprise Ireland Commercialisation fund - Proof of Concept & Technology Development](#)
 - Total declared Water Research funding (M€/year): est. 0.28 (1.4 M€ approx to date - The scheme has been running for 5 years)
 - Average duration of a project (months): 12-18 months for Proof of Concept , 24 - 36 months for Commercialisation Fund
 - Average budget of a project (k€): 120 k€ for Proof of Concept & 300 k€ for Technology Development
- [Department of Agriculture, Fisheries and Food Research Stimulus Fund](#)
 - Total declared Water Research funding (M€/year): est. 1.67 (est. 10 M€ since 2005)
 - Average duration of a project (months): n/a
 - Average budget of a project (k€): 665
- [Geological Survey of Ireland - Griffith Geo-science Research Award](#)
 - Total declared Water Research funding (M€/year): est. 1.4 (est. 4.9 M€ since 01/06/2007)

<ul style="list-style-type: none"> ○ Average duration of a project (months): 72 ○ Average budget of a project (k€): 2,000 • Marine Institute - Marine Research Sub-Programme (National Development Plan 2007-2013) <ul style="list-style-type: none"> ○ Total declared Water Research funding (M€/year): est. 0.63 (est. 2.5 M€ since 01/01/2007) ○ Average duration of a project (months): Demo projects 12-24 Months Research projects 3-7 years ○ Average budget of a project (k€): PhD 100 k€, Post-Doc 400-600 k€, Research Project - 0.5-2 M€, Demo project 100-200 k€ • Teagasc Walsh Fellowship Scheme <ul style="list-style-type: none"> ○ Total declared Water Research funding (M€/year): est. 0.147 ○ Average duration of a project (months): 36-48 ○ Average budget of a project (k€): 64.5 – 86 • Office of Public Works - Flood Studies Update Programme <ul style="list-style-type: none"> ○ Total declared Water Research funding (M€/year): est. 0.28 (2 M€ for the period 2005-2012) ○ Average duration of a project (months): 12 ○ Average budget of a project (k€): n/a
<p>Country orientation towards JPI participation</p> <ul style="list-style-type: none"> • Country orientation to JPI objectives (summarizing results of all programmes): <ul style="list-style-type: none"> ○ Bio-based economy: Medium ○ Sustainable ecosystems: Very High ○ Healthier water systems: High ○ Closing water cycle gap: High • Possible to fund foreign organizations? (general position for all programmes, with answers such as: no, yes, in specific programmes, in most programmes): in specific programmes only • Possible to allocate funds to Transnational programmes? (general position for all programmes no, yes, in specific programmes, in most programmes): in most programmes

IT Italy	JPI Partner, EU Member State, Surveyed Funding: 4.8 M€/yr
	

Italy does not have an overall “National Research Programme for water”, but there are three different programmes including different research themes. Three Ministries are responsible for water research in Italy: Ministry for Education, University and Research; Ministry for Agriculture and Forest and Ministry for Environment Territory and Sea.

The [Ministry of Education, University and Research](#) has two research programmes including water issues. The “[PONREC](#) - National Operational Plan Research and Competitiveness 2007-2013 for the Convergence Regions (Calabria, Campania, Puglia, Sicilia)”. It covers the following themes: Axis I - Support to structural changes and strengthening of the scientific-technological potential for the transition to knowledge-based economy; Axis II - Strengthening of the innovative context for the development of competitiveness Axis III - Technical assistance and accompanying measures.

The other programme is “[PRIN](#) - Research Projects of National Interest”. The programme was specifically set up in order to co-fund national research projects carried out by universities. Water is covered under the following themes: Earth Science and Civil Engineering and Architecture.

The [Ministry for Environment Territory and Sea Protection](#) has not a specific research programme, but the department “Soil defence” provides funds for prevention and management of hydrogeologic risk. The Ministry funds through the National Basins Authorities studies, analysis and research on methods and tools to adopt plans and measures regarding flood risk management and water resources protection.

The [Ministry for Agriculture and Forest](#) provides the “[National Strategic Plan for the Rural development](#)”. The area covering water is: Action Plan for research and innovation”: Action 9: Innovation (water management system).

[ISPRA](#) - Institute for Environmental Protection and Research - funds the [SIMM](#) Hydro-Meteo-Marine Forecasting System, which priorities are: Hydrologic extreme events (droughts, floods), marine status and safety of navigation. It is also involved in CRUE-ERANET and IWRM-Net as partner and funder.



The national department of Civil Protection within its programme “*Operative actions for the management of the national regional alert system of hydrogeologic and hydraulic risk*”, funds the National Research Centre (CNR) and other research organizations for specific studies depending on specific needs.

Finally, most of the 20 Italian regions through their environmental and/or agriculture councillorships fund studies and researches on water topics carried out by local universities or institutes of CNR.

Survey Summary Results (per survey)

- [National Operational Plan Research and Competitiveness 2007-2013 for the Convergence Regions](#)
 - Total declared funding on water issues: 1.11
 - Average duration of a project (months): 36

<ul style="list-style-type: none"> ○ Average budget of a project (k€): 500 • Research Projects of National Interest <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): 2.70 ○ Average duration of a project (months): 24 ○ Average budget of a project (k€): 150 • ISPRA: Hydro-Meteo-Marine Forecasting System <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): 1.00 ○ Average duration of a project (months): 12 ○ Average budget of a project (k€): 200
Country orientation towards JPI participation
<ul style="list-style-type: none"> • Country orientation to JPI objectives (summarizing results of all programmes): <ul style="list-style-type: none"> ○ Bio-based economy: medium ○ Sustainable ecosystems: high ○ Healthier water systems: high ○ Closing water cycle gap: high • Possible to fund foreign organizations? no • Possible to allocate funds to Transnational programmes? no

<h1>NL</h1> <p>The Netherlands</p>	<p>JPI Partner, EU Member State, Surveyed Funding: 73.2 M€/yr</p>
	 <p>NL Agency</p>  <p>Innovation Programme for Water Technology</p>   <p>STW Perspective Programme</p> 

[NL Agency](#) came about through a merger of EVD, The Netherlands Patent Office (Octrooiencentrum Nederland) and SenterNovem. At the beginning of January 2010, the three agencies of the Ministry of Economic Affairs were merged to form one single new organisation. The agencies will combine their expertise in the field of sustainability, innovation and international business and cooperation. NL Agency provides clients with a single contact point for information, advice, financing, networking and regulatory matters. NL Agency's primary target groups are businesses, (knowledge) institutions and government bodies. Private individuals are therefore not a primary target group of NL Agency. The current research programme: [Innovation Programme for Water Technology](#) (Wetsus) is a national research programme. Important drivers for Water research activities in the research programme include economic drivers (to gain a competitive position in the near future). Other priorities include energy. Wetsus' research is carried out within the framework of the Technological Top Institute for Water technology, which is part of the Dutch Innovation Program on Water Technology. The innovation program aims for the development of sustainable water treatment technology with a strong focus on export. Wetsus, operating as as Technological Top Institute, takes care of the pre-competitive technology development within this program. Wetsus focuses on the research and development of entirely new concepts and on breakthrough improvements of existing technology. In both cases, an entirely new approach has been chosen whereby the basic principle is always the integration of various knowledge disciplines. The programme is funding Dissemination and Research projects. NL Agency also funds (international) R&D projects that are close to the market. Funding is provided to Universities, Research Institutions & Private Sector. NL Agency is active in JPI "Healthy diet for a healthy life" and "Water challenges for a changing World" and is the Liaison office for framework programme bilateral cooperation with European and Asian countries. It is also active in Eureka network and Eureka cluster Acqueau.

Other relevant Research, Development and Innovation research programmes in the Netherlands include:

- The [Water Technology Innovation Program](#) the Dutch government promotes the development and distribution of Dutch water technology in the areas of drinking water and industrial water supply, waste water treatment, sensing and monitoring technology, and interaction with the environment. This program supports innovations being created by companies (including SMEs) and research institutes.
- The Research programme: [NWO-theme Water & Climate](#) is planned for 2011-2014 and will cover water & climate change related research activities. The previous programme was entitled: NWO Theme Sustainable Earth Research. Water research activities in the research programme are policy-driven and in support of (Fundamental) research. The programme will fund Research projects and funding will be provided to Universities & Research Institutions. NWO is the secretary for the Netherlands for several ERA-NET's.

(http://www.nwo.nl/nwohome.nsf/pages/NWOA_6KYH4N_Eng). NWO is also following all JPI's, and acting as (NL) secretary for a few of these.

- The [societal Innovation Programme](#): Due to climate change and the rising of the sea level the Netherlands is facing societal challenges. By launching two programmes the Netherlands will meet these challenges and will increase economic activities. The first programme is "Building with Nature", where forces of nature are used to protect land. The other one is "[Floodcontrol 2015](#)", using sensors and ICT to manage water systems in the Netherlands.
- [STW Perspective Programme](#). It focuses on solving technological problems by developing new technologies in a multidisciplinary approach, through cooperation with end users, through co-financing by private parties and by setting up special activities like valorization and entrepreneurship.
- [NWO](#) "Water and Climate" and "Sustainable Earth Research" Programmes. The Water and climate programme contributes to innovative insights into the fundamental principles underlying climate extremes, flood security, fresh water supply (for example as drinking water and in agriculture), changing ecosystems and the boundaries of the intrinsic predictability of fluctuations and trends in the climate. The theme will also contribute to knowledge development that benefits the manageability and controllability of water systems. The "Sustainable Earth Research" Programme is being developed under the auspices of the National Partnership for Sustainable Earth research (NPDA), whose members include NWO, Knowledge for Climate Foundation, Energy research programmes, and several larger and smaller institutes that steer research in the field of sustainability and the Earth.
- The [Water Framework Directive Programme](#) funds Innovation projects between public and private parties to meet the challenges as described in the WFD.

Survey Summary Results (per survey)

- [NL Agency: Innovation Programme for Water Technology](#)
 - Total declared Water Research funding (M€/year): 16
 - Average duration of a project (months): 36
 - Average budget of a project (k€): 500
- [NWO-theme Water & Climate](#)
 - Total declared funding (M€/year): Planned activity (budget under discussion)
 - Average duration of a project (months): 36-48 months
 - Average budget of a project (k€): Personnel costs per PhD-student or Postdoc ~ € 200k. Costs for research, however, within certain limits.
- Societal Innovation Program
 - Total declared funding (M€/year): 5.7
 - Average duration of a project (months): 60
 - Average budget of a project (k€): 12.000
- STW Perspective Programme
 - Total declared funding (M€/year): 5
 - Average duration of a project (months): 42
 - Average budget of a project (k€): 5.000
- NWO Water and Climate, Sustainable Earth Research
 - Total declared funding (M€/year): 11.5
 - Average duration of a project (months): 42
 - Average budget of a project (k€): 5.000
- Water Framework Directive
 - Total declared funding (M€/year): 35
 - Average duration of a project (months): 2
 - Average budget of a project (k€): 1

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: High
 - Sustainable ecosystems: High
 - Healthier water systems: High
 - Closing water cycle gap: High

- Possible to fund foreign organizations? Yes
- Possible to allocate funds to Transnational programmes? Yes

NO Norway	JPI Observer, Associated Country, Surveyed Funding: 3.33 M€/yr	
	 The Research Council of Norway	

The [Research Council](#) is Norway's official body for the development and implementation of National research strategy. The Council is responsible for enhancing Norway's knowledge base and for promoting basic and applied research and innovation in order to help meet research needs within society. It actively promotes international research cooperation. The RCN has three areas of focus: 1) it serves as an advisory body on research policy issues; 2) it identifies research needs; and 3) it recommends national priorities. Through the establishment and implementation of targeted funding schemes the RCN facilitates the translation of National research policy objectives into action. The RCN serves as a meeting place for researchers, funders and users of research findings, as well as for the different sectors and subject fields that are affiliated with the world of research. The most relevant research programme is "[Norwegian Environmental research towards 2015 \(MILJØ2015\)](#)". This programme focuses amongst others on pollutants (POPs, heavy metals, pesticides, eutrophication), on freshwater ecosystems and biodiversity and on wild salmon related research.


The [Norwegian Water Resources and Energy Directorate](#) (NVE) is the second major water research funding institution in Norway. Its mandate is to 1) ensure an integrated and environmentally sound management of the country's water resources; 2) promote efficient energy markets and cost-effective energy systems; and 3) contribute to efficient energy use. The directorate plays a central role in the national flood contingency planning and bears overall responsibility for maintaining national power supplies. In 2009 NVE was assigned greater responsibility for the prevention of damage caused by landslides, debris flows and snow avalanches. NVE is involved in research and development in its fields and is the National centre of expertise for hydrology in Norway. Energy and water are fundamental factors in the struggle to combat poverty, improve health conditions, and increase prosperity in the developing world. NVE has more than thirty years of experience in development assistance. Most work in developing countries involves programmes initiated by the Norwegian Agency for Development Cooperation or the Norwegian Ministry of Foreign Affairs. The Norwegian Environmental Flows Research Programme (2001-2011) has the objective of increasing knowledge of the physical and biological consequences of strongly reduced flows, as well as developing improved methods for the determination of appropriate environmental flows. This will lead to a more effective management, an improved basis for decisions and thus a reduction of conflicts through the use of accepted methods and improved knowledge.

Survey Summary Results (per survey)

- [Norwegian Environmental research towards 2015 \(MILJØ2015\)](#)
 - Total declared funding on water issues (M€/year): 3
 - Average duration of a project (months): 36
 - Average budget of a project (k€): 530
- [Norwegian Environmental Flows Research Programme](#)
 - Total declared funding on water issues (M€/year): 0.33
 - Average duration of a project (months): 18
 - Average budget of a project (k€): 127

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: medium
 - Sustainable ecosystems: high
 - Healthier water systems: medium
 - Closing water cycle gap: high
- Possible to fund foreign organizations? No
- Possible to allocate funds to Transnational programmes? No

PL Poland	JPI Partner, EU Member State, Surveyed Funding: 6.3 M€/yr
	 Ministry of Science and Higher Education

The [Ministry of Science and Higher Education](#) (Ministerstwo Nauki i Szkolnictwa Wyższego) in Poland started operation in May 5th, 2006. This ministry represents continuity of operation of former sections of the Ministry of Education and Science. The Ministry of Science and Higher Education has a budget for scientific research provided by State funds. The Council for Science constitutes a formal representation of the research community and plays an advisory role to the Minister of Science and Higher Education, who represents the decision-making authority in the field of scientific policy and funding of R&D. The Council for Science is independent from the Minister in issuing its opinions.

All government support for civil research is channeled entirely through the Ministry of Science and Higher Education. The Ministry has identified six ways of financing. Three of them are relevant to this JPI: 1) Peer-reviewed research grants based on research proposals, presented by small research teams or individual researchers. Applications are evaluated by an appropriate group of the Committee twice a year; 2) Subsidies for R & D programmes of national importance commissioned by enterprises, state administrative bodies or local authorities. The financial means are allocated for the implementation of projects and the utilization of research findings; and 3) Subsidies for international scientific and technological cooperation resulting from intergovernmental agreements.

The name of the research programme most related to water research is Ecology & Environmental Protection (MNiSzW - Ekologia i Ochrona Przyrody). This programme covers research areas directly or indirectly related to water, such as ecology, biodiversity, landscape and ecosystems. The programme funds public research and higher education institutions.

Survey Summary Results (per survey)

- [Ministry of Science and Higher Education](#)

- Total declared funding on water issues (M€/year): 6.3

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: medium
 - Sustainable ecosystems: high
 - Healthier water systems: high
 - Closing water cycle gap: high
- Possible to fund foreign organizations? No
- Possible to allocate funds to Transnational programmes? No

PT Portugal	JPI Partner, EU Member State, Surveyed Funding: 1.8 M€/yr	
		

[Fundação para a Ciência e Tecnologia](#) (FCT) is Portugal's main funding agency for research. It is responsible for following the bilateral and multilateral international agreements in science and technology. FCT is a public autonomous institute under the aegis of the Ministry of Science, Technology and Higher Education, which covers all fields of science, from natural sciences to humanities, normally in a responsive mode, aiming at capability enhancement and research excellence. FCT's mission consists in continuously promoting the advancement of scientific and technological knowledge in Portugal, exploring opportunities that become available in any scientific or technological domain to attain the highest international standards in the creation of knowledge, and to stimulate their diffusion and contribution to improve education, health, environment, and the quality of life and well being of the general public. This mission is mainly accomplished through the financing subsequent to the evaluation of the merit of proposals presented by institutions, research teams or individuals in public open calls, and also through cooperation agreements and other forms of support in partnership with universities and other public or private institutions. With a staff of 228 persons, FCT's budget for 2009 was around 630 million €. Funding is structured around the following schemes: promotion of training and career development (fellowships, scholarships, mainly for PhD, Post-doc and PhD in industry), support of centres of excellence (associated laboratories) and research centres (institutional funding), support to infrastructures, promotion and development of scientific activity (research projects) and diffusion of scientific culture. FCT has experience in coordinated actions at national level (join calls with other Ministries) and at the European level; FCT participates in several ERA-Nets and JPIs. The research programme "All Scientific Domains" (Todos os Domínios Científicos) covers research on water issues. The research programme does not have scientific priorities, since it focuses on research excellence. It funds Universities, Research Institutes and Companies.

Survey Summary Results (per survey)

- [FCT: All Scientific Domains](#)
 - Total declared funding on water issues (M€/year): 1,75
 - Webpage: <http://alfa.fct.mctes.pt/fct.phtml.en>
 - Average duration of a project (months): 36
 - Average budget of a project (k€): 100

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: medium
 - Sustainable ecosystems: medium
 - Healthier water systems: medium
 - Closing water cycle gap: medium
- Possible to fund foreign organizations? No
- Possible to allocate funds to Transnational programmes? Yes



The National Authority for Scientific Research (NASR or [ANCS](#)) is the specialised organisation of the central public administration responsible for coordination and implementation of R&D activities in Romania. NASR is a public institution, financed from national budget. The rationale to establish the NASR emerged from the requirement to promote the development of the knowledge-based society. Given the relative large gap in research and technology development between Romania and the EU average, NASR assumed the mission to act as the executive manager of the Romanian government's decision to rapidly increase the public support for RTD towards the Lisbon "3% for RTD" ambitious goal.

The NASR's responsibility is to provide strategic and tactical planning and objectives, and to define, apply, monitor and assess all policies in order to reach the national objectives on scientific research and technological development.

NASR mission is to elaborate, apply, monitor and evaluate research, development and innovation policies in compliance with strategy and governing program, with the aim to ensure the enlargement of RDI national and international patrimony, sustainable development access on domestic, European, and global markets, realizing the knowledge base information society, satisfy citizens' needs and increase their quality of life.

The roles and responsibilities of NASR include the definition of a methodological, functional, operational and financial framework to apply policies; it also harmonises the national law with the EU and assumes the *acquis communautaire*. NASR ensures communication with the other public authorities in order to realize the coherence of the Governmental policies with the society and its citizens.

NASR operates under the following functions:

- **Politic:** to present and unify political points of view regarding research, development and innovation;
- **Strategic:** to plan strategically and ensure the basis and implementation of policies in the research, development and innovation field;
- **Administrative:** to foresee, plan, allocate, supervise and evaluate the use of resources for the implementation of policies in the research, development and innovation field;
- **Policy monitoring, evaluation and control** in research, development and innovation.

Regarding strategic documents, it has to be emphasised that the National R&D Strategy (2007 – 2013) was approved by Governmental Decision 217/2007. Its strategic objectives are:

1. Promotion knowledge creation and S&T development, aiming at obtaining high level, internationally competitive, S&T results;
2. Increase the competitiveness of the Romanian economy, by strengthening the knowledge and S&T transfer towards companies;
3. Increase the quality of life, by development of S&T solutions with strong social impact.

The National Plan for Research, Technological Development and Innovation (PN II) is the main programme by which Romanian Government implements the National Strategy for RDI. PN II is implemented in the 2007-2013 period. The reason for choosing this timeframe was to overlap it with the 7th Framework Programme of the European Union (2007-2013) and Structural funds which are carried out in the same period of time. It is for the first time ever that the R&D sector has a medium term guiding document which serves as basis for further development. Priority domains and research directions were defined as a result of a foresight exercise that has been carried out during 2006.

PN II aims to achieve the three strategic objectives of the National RDI System:

1. Knowledge creation, respectively to achieve leading edge scientific and technological results, competitive at global level, in order to increase the international visibility of Romanian research sector and subsequently to transfer results in economy.
2. Increasing the competitiveness of Romanian economy by innovation, with impact at company level and by transferring knowledge in economy.

3. Increasing quality of life, respectively to find technical and scientific methods which support social development and improve its human dimension.

PN II consists of 6 specific programs: Human Resources, Capacities, Ideas, Partnerships in priority S&T domains, Innovation and Supporting institutional performance. The total Programme budget is 15.000 M lei (approximately 4.800 M€), entirely covered by the national (public) budget. This budget is divided into a series of scientific priorities which comprise the water issues considered in the JPI, but do not assign specific budget for them. The programme manager for PN II is [UEFISCDI](#), the Executive Unit for Higher Education, Research and Development and Innovation Funding.

The Core program (Nucleu – RO) has the main objective of funding participants' own R&D program, made up of several R&D projects that fit the overall strategy of each field of science. It ensures the basic funding for a limited number of national R&D organisations. Beneficiaries can be public research units which are part of the National R&D system. R&D project components of each Nucleus program cannot be submitted for funding to other programs. Each R&D unit eligible must submit only one Nucleus program. Eligible R&D units that are under the co-ordination of other ministries, have to submit their own programs only agreed by their coordinating ministries and approved by NASR. Within a year, the fund for Nucleus program of an R&D unit cannot be lower than 20% and cannot exceed 60% of their incomes from R&D activities during the past year expressed in real terms. The program has no specific duration; each project proposed by each institution can be annual or multiannual. This program is designed to ensure the basic funding of National R&D Institutes, without altering the principle of competition.

Survey Summary Results (per survey)
<ul style="list-style-type: none"> • National Plan for Research, Technological Development and Innovation, PN II <ul style="list-style-type: none"> ○ Total declared funding (M€/year): n/a ○ Average duration of a project (months): 36 ○ Average budget of a project (k€): 500
Country orientation towards JPI participation
<ul style="list-style-type: none"> • Country orientation to JPI objectives (summarizing results of all programmes): <ul style="list-style-type: none"> ○ Bio-based economy: medium ○ Sustainable ecosystems: high ○ Healthier water systems: high ○ Closing water cycle gap: medium • Possible to fund foreign organizations? No • Possible to allocate fund Transnational programmes? In some programmes, like in the ERANETs.

ES Spain	JPI Partner, EU Member State, Surveyed Funding: 15.6 M€/yr
	 MICINN

MICINN is the Ministry responsible for research, development and innovation in Spain. Three Directorate Generals are directly related to this JPI, covering the areas of Research, Technology Transfer and International Affairs. Evaluation of research and development proposals partially relies on ANEP, the [National Agency for Evaluation and Prospective](#). Within the *Plan Nacional de I+D+i* - [Spanish National Plan for Research, Development and Innovation](#) - water research is mainly funded through the National Programme for Fundamental Research. Other Programmes related to Innovation, applied research or International activities devote additional funds to water issues.

The current National Plan represents a continuation and refinement of [previous National Plans](#) dating from 1988. During these years, administrative procedures have changed to provide more flexibility to scientists, evaluation procedures have been refined and the requirements of scientific excellence have increased. The National Plan has always represented the major opportunity for RTD funding at the National level, although in the last 20 years the research funding capacity of the regional governments has increased.

The National Plan covers all areas of science and technology. There are no scientific priorities as such, although five major horizontal strategic areas have been identified: 1) Health, 2) Biotechnology, 3) Energy and climate change, 4) Information technologies, and 5) Nanoscience and new industrial materials and processes. Water issues are partially related to some of them.

The National Programme for Fundamental Research funds research projects targeting Universities and Research Institutes. These projects are intended to address scientific and technological problems identified within the scientific community. Stakeholders can be involved, but funding can only be applied to two types of private entities: Technological Centres and non-profit institutions. Proposal evaluation focuses on scientific and technological excellence. Cooperation with international institutions is foreseen, but in general these can not have a budget under the Programme. The most common way of International Participation is through the adscription of individual foreign researchers.

Innovation activities can be funded through a number of specific calls for proposals, including the INNFACTO and CENIT projects, as well as subsidies to Technology Platforms. These activities imply funding to public research and innovation actors and either funding or credit lines to private companies. National organizations are targeted in these programmes, and evaluation takes innovation into consideration, assigning less importance to scientific excellence.

Regional governments within Spain have a significant capacity to fund research and innovation. Regional research funding programmes often selected and funded proposals between 1990 and 2005. In the last years, however, a number of these programmes have evolved to provide basal funding to outstanding research groups. Regional programmes on water are not known, and the funding capacity of these programmes is much smaller than that of the National Plan.

Survey Summary Results (per survey)

- [National Programme for Fundamental Research](#)
 - Total declared funding (M€/year): 13.0
 - Average duration of a project (months): 36
 - Average budget of a project (k€): 115
- [Innovation programmes: INNFACTO and Technology Platforms](#)
 - Total declared funding (M€/year): 2.6
 - Average duration of a project (months): 36

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):

- Bio-based economy: high
- Sustainable ecosystems: high
- Healthier water systems: high
- Closing water cycle gap: high
- Possible to fund foreign organizations? No
- Possible to allocate fund Transnational programmes? Not for the specified programmes, although experience has been accumulated through the ERANET schemes.

TR Turkey	JPI Partner, Associated Country, Surveyed Funding: 4.1 M€/yr
	 The Scientific and Technological Research Council of Turkey TÜBİTAK

[TÜBİTAK](#) is the leading agency for management, funding and conduct of research in Turkey. The Council is an autonomous institution and is governed by a Scientific Board whose members who are selected from prominent scholars from universities, industry and research institutions. TÜBİTAK is responsible for promoting, developing, organizing, conducting and coordinating research and development in line with national targets and priorities. TÜBİTAK acts as an advisory agency to the Turkish Government on science and research issues, and is the secretariat of the Supreme Council for Science and Technology, the highest S&T policy making body in Turkey. Setting its vision as to be an innovative, guiding, participating and cooperating institution in the fields of science and technology, which serves for improvement of the life standards of Turkish society and sustainable development of Turkey, TÜBİTAK not only supports innovation, academic and industrial R&D studies but also in line with national priorities develops scientific and technological policies and manages R&D institutes. Furthermore, TÜBİTAK funds research projects carried out in universities and other public and private organizations, conducts research on strategic areas, develops support programs for public and private sectors, publishes scientific journals, popular science magazines and books, organizes science and society activities and supports undergraduate and graduate students through scholarships. More than 1,500 researchers work in 15 different research institutes of TÜBİTAK where contract research as well as targeted and nation-wide research is conducted.

Four Directorates are related to this JPI, covering the areas of Technology and Innovation, Academic Research, Policy and International Cooperation.

The Support Programme for Scientific and Technological Research Projects (1001) was established to support research for generating new information, interpreting scientific findings, or solving technological problems on a scientific basis, and projects with advanced technology applications. The purpose of the programme is to increase Turkey's competitive capacity in the international market within prioritised areas. Universities and public and private institutions can apply for this programme.

[International Industrial R&D Projects Grant Program](#) (1509) is designed to encourage Turkish companies to carry out international projects such as EUREKA, EUROSTARS and European Union Framework Programmes. Any Turkish company with one or more partners from participating countries can apply for funding. Project application should be made simultaneously with the application to the international joint programme or at most in one month after.

Other Support Programmes of TÜBİTAK devote additional funds for research and innovation in water only for national research. This is the case of the [Support Programme for Scientific and Technological Research Projects](#) or the [Public Sector Research and Development Projects Funding Programme](#).

Water as a research area is also prioritised in National Science, Technology and Innovation Strategy (2011-2016) which is prepared by TÜBİTAK. The vision of Turkey during the upcoming National Science, Technology and Innovation Strategy (UBTYS) 2011-2016 is to contribute to new knowledge and develop innovative technologies to improve the quality of life by transforming the former into products, processes, and services for the benefit of the country and humanity. In this regard the studies have been conducted to prepare National R&D and Innovation Strategy for Water in accordance with the decision of Turkish Supreme Council for Science and Technology.

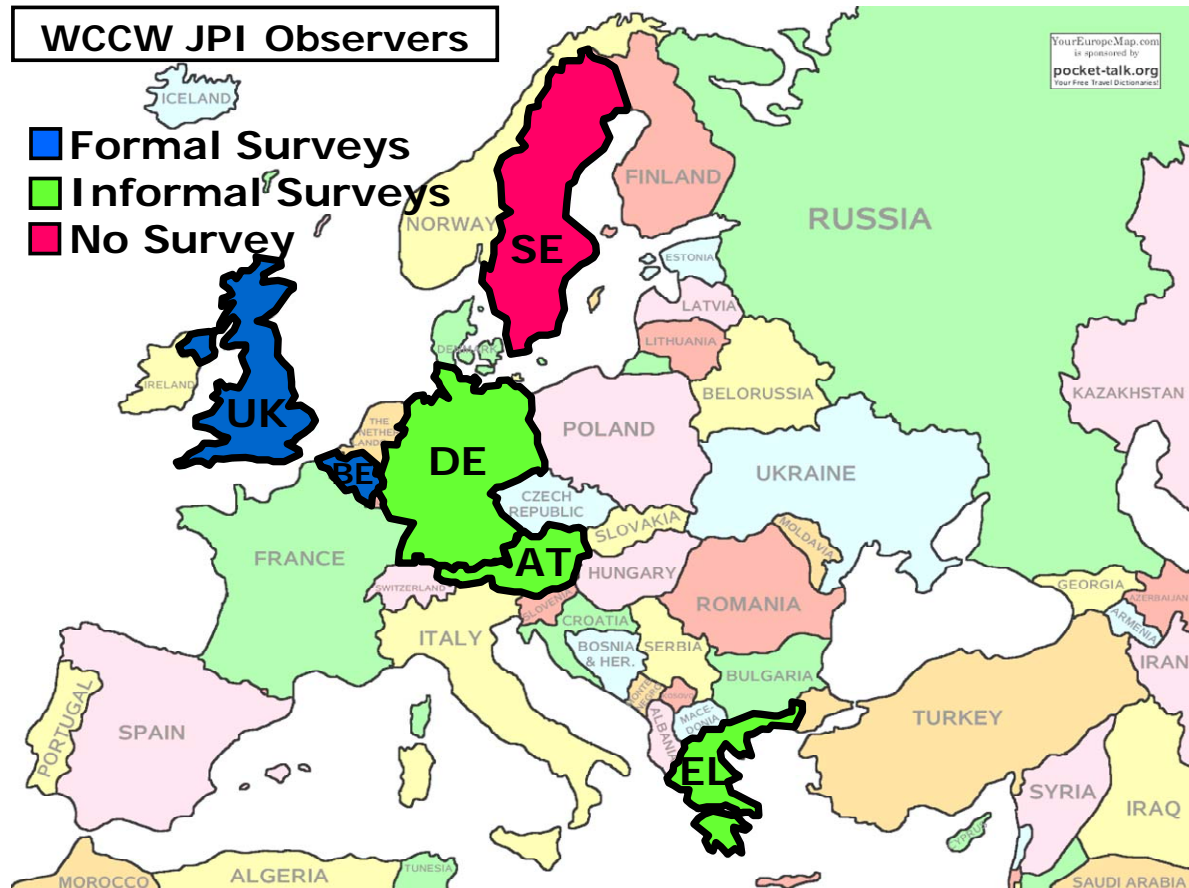
Survey Summary Results (per survey)

- [TUBİTAK: 1509 - International Industrial R&D Projects Grant Programme](#)
 - Total declared funding on water issues (M€/year): The programme has not funded water research projects up to now. However it is open to fund water research projects and virtual common pot, and has a overall budget of 15 M€/year to fund international industrial R&D projects in any research areas. The water research is funded by the other programme specific to industries but only for national use.
 - Average duration of a project (months): 36
 - Average budget of a project (k€): 500

<ul style="list-style-type: none"> • The Support Programme for Scientific and Technological Research Projects (1001) <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): 1.3 ○ Average duration of a project (months): 24-36 ○ Average budget of a project (k€): 60 k€/year • Public Sector Research and Development Projects Funding Programme <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): 2.8 (The programme doesn't have a fixed budget/year, the average values are given. It is not possible for the Programme to allocate budget for transnational activity) ○ Average duration of a project (months): 48 ○ Average budget of a project (k€): 1000
<p>Country orientation towards JPI participation</p>
<ul style="list-style-type: none"> • Country orientation to JPI objectives (summarizing results of all programmes): <ul style="list-style-type: none"> ○ Bio-based economy: high ○ Sustainable ecosystems: high ○ Healthier water systems: high ○ Closing water cycle gap: high • Possible to fund foreign organizations? No • Possible to allocate funds to Transnational programmes? TUBITAK can participate to transnational programmes provided that there is no transnational money transfer. Only "The Support Programme for Scientific and Technological Research Projects" and "International Industrial R&D Projects Grant Programme" allow to participate in transnational programmes by using virtual common pot.

9.3.2. Observer Countries

Country Summary Reports are presented for the countries highlighted in the map. The map also indicates if formal or informal surveys were received.





The [Federal Ministry of Science and Research](#) is responsible for 72 % of the public research funding in the country. Research funding is performed through specialized Federal organisms.

The [Austrian Science Fund](#) (FWF) is Austria's central funding organization for basic research. The purpose of the FWF is to support the ongoing development of Austrian science and basic research at a high international level. In this way, the FWF makes a significant contribution to cultural development, to the advancement of knowledge-based society, and thus to the creation of value and wealth in Austria. FWF's objectives include strengthening Austria's international performance and capabilities in science and research as well as the country's attractiveness as a location for high-level scientific activities, primarily by funding top-quality research projects for individuals and teams and by enhancing the competitiveness of Austria's innovation system and its research facilities. In 2009, FWF funded research in hydrology for 1.2 M€. The programme in chemistry (partially relevant to water purification and treatment) received 7.8 M€.

FFG is the [National support centre for industrial research in Austria](#). They support Austrian companies, research institutions and researchers with a comprehensive range of support and services and representing Austrian interests at European and international level.

The [Federal Ministry for Transport, Innovation and Technology](#) the [Federal Ministry for Agriculture, Forestry, Environment and Water Management](#) are responsible for 16 % and 3 % of the public research funding in the country, respectively. However, they specialize on research lines which in many cases are directly related to the water JPI. Such is the case of the Floodrisk programme, in which both Ministries acted as programme owners.

JPI Observer, EU Member State, Surveyed Funding: 4 M€/yr	
BE Belgium	

The [Belgian Federal Science Policy Office](#), previously known as the 'Federal Office for Scientific, Technical and Cultural Affairs' (OSTC), is a federal administration which covers a very broad area. It manages an annual budget of about 513 M € and a staff of 2.700. The mission of the Federal Science Policy Office is to prepare, execute and evaluate science policy and its extensions, support 10 other Federal Scientific Institutions for the coordination and valorisation of research activities, implement scientific means in support of authority competences. The Research Programmes department is responsible for managing (1) Multi-annual, topic-specific programmes in response to problems linked to the policies of the public authorities, such as social cohesion, sustainable development and information society. The matters fall within the sole jurisdiction of the Federal Government or that of several authorities (federal and federate), in which event the programmes are the subject of co-operation agreements concluded between the Federal Government and the Communities and/or Regions, (2) Basic research programmes are also run under the "inter-university attraction poles" programme (IAP), which falls within the framework of a co-operation agreement between the Federal Government and the Communities. The Office also represents the Federal Government in specific committees of the European Research Programs of the DG Research and related activities.

The [Agency for Innovation by Science and Technology](#) (IWT) is a governmental research funding agency of the Flemish Government. It is responsible for the promotion of innovation through science and technology in Flanders. In this framework one of the missions of IWT is to stimulate the Flemish participation to international RTD and innovation programmes. In addition, IWT is the NCP-organisation for Flanders also the Eureka office and part of Enterprise Europe Network-Flanders. IWT targets researchers from industry, universities and their intermediary organisations, private and public research institutions in Flanders. The "[Waterbouwkundig Laboratorium](#)" (WL, Flanders Hydraulics Research) is a relevant additional research funder in Flanders. It makes part of the Department of Mobility and Public Works of the Flemish Authorities. WL works for the agencies (water managers of navigable waterways in Flanders) and Maritime Access Division in the field of research and advise on hydrology, hydraulics and nautical sciences, operational services of flood forecasting and warning. The institution acts as Ambassador of CRUE ERA-Net (external relations of the network after formal ending of CRUE as an FP 6 coordination action), and is partner in CIRCLE-2 ERA-Net about climate change adaptation. WL funds and develops actions in water quantity issues, flooding and water scarcity, focusing on navigable rivers and the sea, including the effects of climate change.

The « [Fonds de la Recherche Scientifique](#) » (FNRS) was established in 1928. Its founding principle is the promotion of basic scientific research in the French-speaking Community of Belgium. The organisation has four associated funds: Medical Research, Nuclear Science, Collective Basic Research and Agro-Industrial Research. As the organisation does not harbour laboratories in its premises, all the research is carried out at universities. The organisation supports individual researchers. It awards temporary grants to fund doctoral students and grants for qualified researchers, scientific research workers and research managers. The resources available consist mainly of subsidies granted by the French Community and the Federal State of Belgium. FNRS receives private funds to be spread within the scientific community on the sole basis of scientific excellence. The applicants are selected via peer-review evaluation. The evaluation is done by 32 scientific committees, whose members are leading national and international scientists in their respective field. The FNRS works on a bottom-up approach, which means that there are no targeted approach calls but exclusively proposals freely created by the interested researchers or researchers-to-be. All scientific areas are covered, and scientific excellence is the only criterion.

Survey Summary Results (per survey)

- [Belgian Federal Science Policy Office](#)
 - Total declared funding on water issues (M€/year): 1
 - Average duration of a project (months): 48
 - Average budget of a project (k€): 167
- [Name: Flanders Hydraulics Research](#)
 - Total declared funding on water issues (M€/year): 3
 - Average duration of a project (months): 24
 - Average budget of a project (k€): 150

DE Germany	JPI Observer, EU Member State	
		
		

The [Federal Ministry of Education and Research](#) (BMBWF) performs research funding operations of science and research. These activities must provide for the future: The protection of the environment and climate change, safeguarding energy supplies, but also demographic development are all processes which take several decades. Research also secures the basis for prosperity and social cohesion, since research results form the basis for international competitiveness.

BMBWF research funding supports private and public scientific institutions and enterprises. The Ministry also funds individual researchers via special funding institutions. BMBWF's grants are mainly based on competitive calls and peer review processes. In the field of water research, the five years programme "Nachhaltiges Wassermanagement – NaWaM" (Sustainable Water Management) has been started at the end of 2010 with a volume of approximately 200 M€. It comprises five thematic areas: water and health, water and energy, water and food, water in urban areas and water and environment. The institution has been partner of the IWRMNet and CRUE ERA-NETs.

Another large funding body in Germany is the 'Deutsche Forschungsgemeinschaft' (DFG; [German Research Foundation](#)). DFG is the self-governing organisation for science and research in Germany. The DFG funds knowledge-oriented research without predefinition of topics and relies on competition to select the best projects in terms of scientific quality. The DFG receives its funds from the States and the Federal Government, which are represented in all Grants Committees. At the same time, the voting system and procedural regulations guarantee science-driven decisions.

The [Deutsche Bundesstiftung Umwelt](#) (DBU) is a foundation created using industrial privatization funds. This foundation is committed to fund research and development in three specific areas of knowledge. Two of them, "environmental technology" and "environmental research and nature conservation" are directly related to the objectives of the water JPI. Grants can be assigned to individuals or institutions. The evaluation criteria include innovation, model character and prospects for environmental relief.

The Federal States of Germany ("Länder") also act as research funding bodies. They run several research institutions which contribute to supporting the research activities of the Länder. There are more than 100 institutes owned and managed by the Länder, covering a broad range of research areas.



The [General Secretariat for Research and Technology](#) of the [Ministry of Education, Lifelong Learning and Religious Affairs](#) is responsible for the following activities (among others):

- Supports through its programmes, the research activities of both the country's scientific research institutes and those of its productive industry, focussing on areas that are important for the national economy and for the improvement of the quality of life.
- Promotes the transfer and dissemination of advanced technologies throughout the country's productive sector, thus ensuring early utilisation of the results of research activity.
- Promotes cooperation with other countries and international organisations on research and technology issues.

The Greek Strategic Priorities on Research and Technology include:

- Increasing the demand for new knowledge and research results in Greece
- "Freeing-up" the Greek research system and opening it further to the international field
- Establishing Thematic / Sector priorities for a policy on Science and Technology

Water research priorities are discussed in the "Strategic Plan for the Development of Research, Technology and Innovation under the NSRF 2007-13". The document includes issues such as water pollution, environmental intelligence, risk management and the sustainable management of water resources.

The Secretariat runs bilateral programmes for Research. Programmes with [Romania](#) and [Turkey](#) are currently active. Programmes have been finalized with France, Cyprus, Montenegro, Turkey, the United Kingdom, Poland, Germany, Slovakia, Spain, Russia, France, Slovenia, Bulgaria and Serbia.



Specific Programmes are also run for different regions of Greece. A programme is currently being run for [Attica](#). A number of other regional programmes have been run in the past.

Other programmes focus on competitiveness and Enterprising. The programme for 2007-2013 includes specific actions for [collaborative projects](#), [new enterprises](#) and [SME support](#).

Survey Summary Results (per survey)

- Bilateral R&D Cooperation Greece-Romania 2011-2012
 - Total declared funding on water issues (M€/year): there is not s specific budget for water. The programme has a budget of 0.30 M€ for all thematic areas.
 - Average duration of a project (months): 24
 - Average budget of a project (k€): 15
- Bilateral R&D Cooperation Greece-Turkey 2010-2011
 - Total declared funding on water issues (M€/year): there is not s specific budget for water. The programme has a budget of 0.30 M€ for all thematic areas.
 - Average duration of a project (months): 24
 - Average budget of a project (k€): 15
- Competitiveness and Enterprising 2007-2013. National Action: Cooperation. Activities I & II: Small-medium collaborative projects; Large collaborative projects
 - Total declared funding on water issues (M€/year): there is not s specific budget for water. The total programme budgeted is 6.4 M€.
 - Average duration of a project (months): 24- 60
 - Average budget of a project (k€): 300-3,000
- Competitiveness and Enterprising 2007-2013. National Action: Supporting new and small-medium enterprises. Activities: Supporting new enterprises in RTD activities
 - Total declared funding on water issues (M€/year): there is not s specific budget for water.

<ul style="list-style-type: none"> ○ The total budget programme is 11.3 M€. ○ Average duration of a project (months): 24-36 months ○ Average budget of a project (k€): 200.000 € maximum • Competitiveness and Enterprising 2007-2013. National Action: Supporting new and small-medium enterprises. Activities: Supporting SME Groups in RTD activities <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): there is not s specific budget for water. The total programme budget is 23.7 M€. ○ Average duration of a project (months): 24-36 months ○ Average budget of a project (k€): 300.000 € (maximum is 500.000€) • Regional Operational Programme of Attica 2000-2006 <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): there is not s specific budget for water. The total programme budget is 5.8 M€. ○ Average duration of a project (months): 24 months ○ Average budget of a project (k€): 400.000 to 1.000.000€
<p>Country orientation towards JPI participation</p> <ul style="list-style-type: none"> • Country orientation to JPI objectives (summarizing results of all programmes): <ul style="list-style-type: none"> ○ Bio-based economy: high ○ Sustainable ecosystems: high ○ Healthier water systems: high ○ Closing water cycle gap: high • Possible to fund foreign organizations? no • Possible to allocate funds to Transnational programmes? Maybe (if this is incorporated during the planning phase of the programme), but not certain

JPI Observer, EU Member State	
SE Sweden	  REGERINGSKANSLIET Government Offices of Sweden Ministry of the Environment, Ministry for Rural Affairs

The [Swedish Research Council Formas](#) is committed to excellence in research for sustainable development. The mission of Formas is to promote and support basic research and need-driven research in the areas Environment, Agricultural Sciences and Spatial Planning. The research that is funded should be of the highest scientific quality and relevance to the areas of responsibility of the Council. Formas may also fund development projects to a limited extent.

Formas is a national research council that comes under the [Ministry of the Environment](#). This means that Formas receives most of its financial allocation from this ministry. The rest of the allocation comes from the [Ministry for Rural Affairs](#).

The Appropriation Directives set out the tasks which the Government entrusts to Formas. Reports on the progress of work on these tasks are continually submitted to the Government in the form of evaluations, state of the art, research strategies and research programmes. The work of Formas extends over three areas, support for research, strategy and analysis and research information.

Within Formas' annual calls for proposals, applications can be submitted for research and development projects, postdoctoral grants, open postdoctoral grants and positions as assistant professor. In addition to the annual call for proposals, Formas also announces strategic calls in one or more thematic areas. These calls may be at any time during the year. They may be either solely financed by Formas or jointly financed by one or more additional funding agencies. The source of joint financing may be national or international.



The [Business, Innovation and Skills](#) (BIS) Department of the Government of the United Kingdom pursues global excellence in science and research to help the UK maintain economic prosperity and address key global and domestic challenges, such as climate change and security. Innovation helps BIS deal with complex challenges and drive growth by improving productivity and R&D. The BIS Department coordinates scientific efforts in the country. Responsibilities for water related research are distributed across devolved governments (Scotland, Wales and Northern Ireland) and between different departmental interests (e.g. environment, international development). The largest funders of water research are the [Research Councils](#) and The [Department of Environment, Food and Rural Affairs](#) (DEFRA). Living with Environmental Change (LWEC) is a partnership of twenty two UK public sector funders and users of environmental research that seeks to improve coherence and effectiveness of environmental (including water) research and innovation across its member organisations.

Each year the Research Councils invest around 3,500 M€ in research covering the full spectrum of academic disciplines from the medical and biological sciences to astronomy, physics, chemistry and engineering, social sciences, economics, environmental sciences and the arts and humanities. The focus is on excellence with impact. Global research requires we sustain a diversity of funding approaches, fostering international collaborations, and providing access to the best facilities and infrastructure, and locating skilled researchers in stimulating environments. Research Council research achieves impact – the demonstrable contribution to society and the economy made by knowledge and skilled people. While each of the seven Research Councils is to some extent involved in water research, two of them are more directly related.

The [Natural Environment Research Council](#) (NERC) mission is to gather and apply knowledge, improve understanding and predict the behaviour of the natural environment and its resources. It was established in 1965. NERC funds and manages research and training in earth system science, advancing knowledge of planet Earth as a complex, interacting system. Its work covers the full range of atmospheric, earth, terrestrial and aquatic sciences. Current research programs most related to this JPI include: Changing Water Cycle (€10m over 4 years 2011-14); Storm Risk Mitigation (€5m over 5 years 2010-14) and the Water Security Knowledge Exchange Programme (1.5€ over three years 2011-14). New research programmes related to hydrological extremes are under consideration with possible start dates in 2012 or beyond.

The [Engineering and Physical Sciences Research Council](#) (EPSRC) funds research and training in engineering and the physical sciences, investing around 600 M€/yr in a broad range of subjects. EPSRC operates to meet the needs of industry and society by working in partnership with universities to invest in people and scientific discovery and innovation. Their research programs most related to this JPI include: water system resilience; the waste, water and land management cluster; the Water for All grand challenge; and cold water cleaning.

The human dimensions to water use are addressed by the [Economic and Social Research Council](#) (ESRC), water use in agriculture and biotechnological aspects are addressed by the Biotechnology and Biological Sciences Research Council (BBSRC), while the health aspects are addressed by the Medical Research Council (MRC).

DEFRA makes policy and legislation, and works with others to deliver policies in areas such as: the natural environment, biodiversity, plants and animals; sustainable development and the green economy; food, farming and fisheries; flood and coastal erosion risk management; and environmental protection and pollution control. DEFRA funds a large number of research projects every year. Projects are funded in a number of ways, including: competitive calls for proposals; non-competitive arrangements; and in partnership with others. Water-related research is carried out under a number of different programmes within the Department. The Water Availability and Quality Programme delivers the Government's policy priorities in the areas of water quality and supply. The Drinking Water Inspectorate R&D Programme provides credible and authoritative information on the health aspects of drinking water quality to ensure that standards and regulations protect public health. The Food and Farming Group funds a significant R&D programme on water quality and use in farming, through the Sustainable Water Management Programme. The Department also funds a significant Flood and Coastal Erosion Risk Management R&D programme.

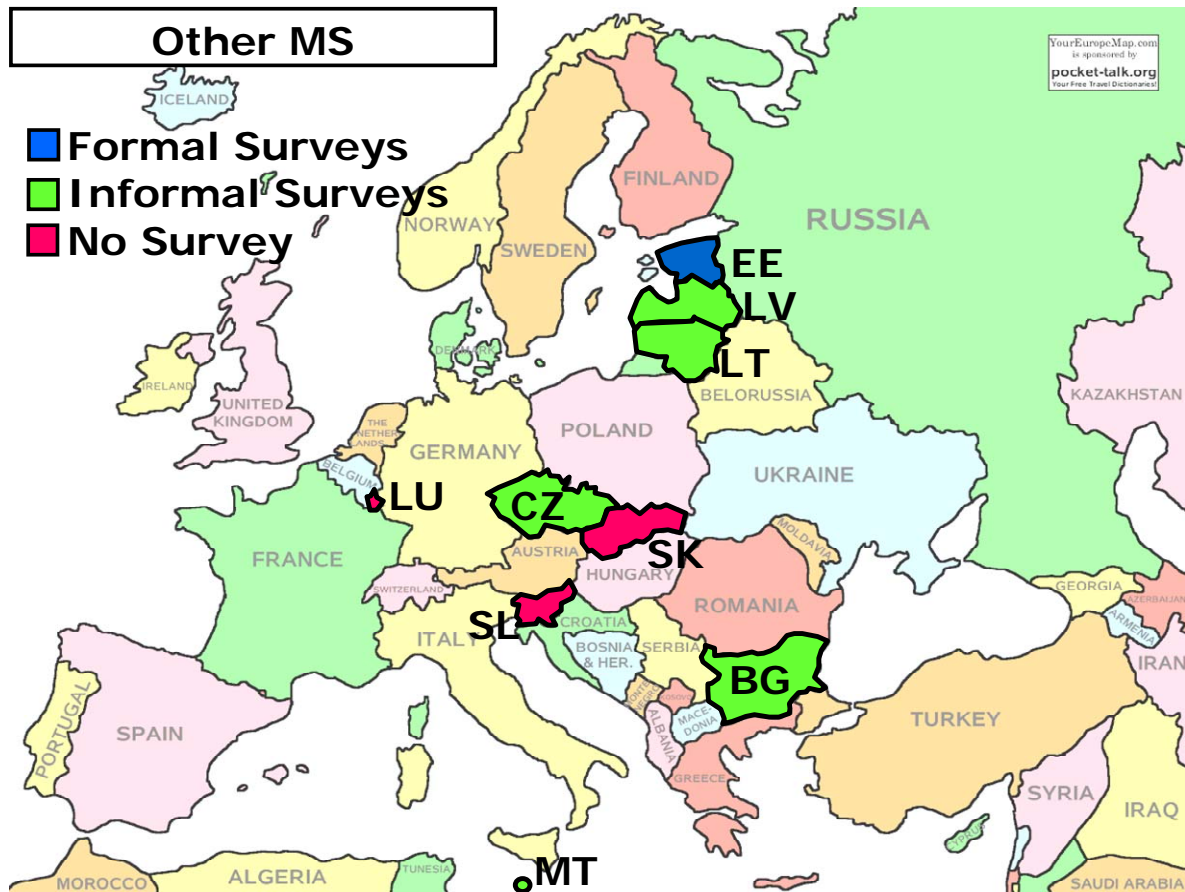
Regulation of the water environment lies primarily with devolved Environment Agencies for [England and Wales](#) (EA), [Scotland](#) (SEPA) and [Northern Ireland](#) (DENI). These agencies are interested in knowledge exchange and networking to provide the evidence to support their operations.

Survey Summary Results (per survey)

- [Department of Environment, Food and Rural Affairs \(DEFRA\)](#)
 - Water Availability and Quality Programme
 - Total declared funding on water issues (M€/year): 2.9
 - Average duration of a project (months): 18
 - Average budget of a project (k€): 145
 - Drinking Water Inspectorate
 - Total declared funding on water issues (M€/year): 1.1
 - Food and Farming Group
 - Total declared funding on water issues (M€/year): 7.0

9.3.3. Rest of the European Union Member States

Country Summary Reports are presented for the countries highlighted in the map. The map also indicates if formal or informal surveys were received.





The main national instrument for research funding in Bulgaria is the [National Science Fund](#). Some key “national research tasks” will be supported by the Ministry of Agriculture and Food, implemented through the institutes of the Agricultural Academy. Projects in the field of water research are also supported under EU schemes (i.e., Structural funds) or bilateral cooperation programmes.

Up to five Ministries have responsibilities in the area of water research in Bulgaria. The policy framework derives from the following key documents:

- Innovation Strategy of the Republic of Bulgaria;
- National Strategy for Research and Development of the Republic of Bulgaria;
- National Environmental Strategy;
- Strategy for Management and Development of water-supply and system of drains in Bulgaria (implemented by the Ministry of regional development);
- National law on Water; and
- National law on Environment.

The [Ministry of Education, Youth and Science](#) is responsible for non-oriented research in all fields of science. The “National Science Fund” (NSF) operates under the auspices of the Ministry. NSF programme on Research and Development covers all fields of science and operates on competitive calls for proposals.

The [Ministry of Economy, Energy and Tourism](#) is responsible for innovation in all scientific fields. The National Innovation Fund programme focuses on improving conditions for private enterprises in undertaking innovative activities. However, funding is also offered to public Institutes and Universities when operating in partnership with companies. The programme is managed by the SMEs Promotion Agency.

Some “national research tasks” (including water research) will also be financed at national level by the [Ministry of Agriculture and Food](#). These are assigned and approved by the Ministry of Agriculture and Food and implemented through the Agricultural Academy.

The water research funding perspective in Bulgaria is also supported by the [Ministry of Health](#) (through the National Council for Public Health Protection).

Finally, the [Ministry of Environment and Water](#) is responsible for water policy in the country, but does not own specific research programme.

Survey Summary Results (per survey)

- “Promotion of research in priority areas” competition under the National Science fund
 - Total declared funding on water issues (M€/year): n/a
 - Average duration of a project (months): 36
 - Average budget of a project (k€): 100-150

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: low
 - Sustainable ecosystems: medium
 - Healthier water systems: medium
 - Closing water cycle gap: medium
- Possible to fund foreign organizations? In specific programmes
- Possible to allocate funds to Transnational programmes? In specific programmes



The [Ministry of Education, Youth and Sports](#) is the central administrative office responsible for research and development in Czech Republic. The Ministry ensures the preparation of the National Research and Development Policy and the monitoring of its implementation. The Ministry also prepares priorities in the form of the National Research Programme. The research programme is managed by the [Research and Development Council](#). The [Czech Science Foundation](#) promotes progress over the whole range of basic research in the Czech Republic. The main function of the Czech Science Foundation is to provide, on the basis of public tender, financial support for research projects submitted by individuals or organizations. The main source of the funds available is the state budget, but contributions from other sources are also possible.

The [Ministry of the Environment](#) deals with the problems of water protection through projects focusing on research and protection of the hydrosphere, the development of methods for predicting droughts and floods or the basis of soil infiltration and water retention properties, and mapping risks arising from floods in Czech Republic. The [Agency for Nature Conservation and Landscape Protection](#) of the Czech Republic performs activities in a number of areas related to research activities:


- Remediation of the impacts of the devastation of the landscape's water regime. Measures ensuring prosperity of hydrologic- and landscape- valuable localities and habitats.
- Landscape Management (protection against erosion, maintenance of the cultural condition of the landscape and support of biodiversity), Management of Specially Protected Parts of Nature, Special Protection Areas – Bird Areas and Sites of Community Importance. A specific subprogramme has been designed to Support Aquatic Ecosystems Adaptation.

The [State Environmental Fund](#) of the Czech Republic runs a programme focusing on the protection and improvement of the environmental quality. Their priorities include the improvement of water management infrastructure and reduction of flood risks; the improvement of waste management; limiting industrial pollution and environmental risks; and improving the state of nature and the landscape. The programme is open to a large number of societal and political organizations, including research and scientific institutes.

The [Ministry of Agriculture](#) conducts several sub programmes focusing on “Competitiveness within Sustainable Development”, including the “Utilisation of Natural Resources” focusing on developing of technology for the treatment and cleaning of water and improving the effectiveness of managing water in the landscape with the aim of ensuring the quality of drinking and avoiding consequences of hydrological extremes events as floods and droughts. It also drives a sub-programme on “Competitiveness in sustainable development” with topics such as the rationalisation of water management, the protection, preservation and utilisation of soil and water in agriculture. Other programmes address increasing the functionality of water bodies or agricultural watercourses.

The [Technology Agency](#) of the Czech Republic supports projects of applied research and experimental development and stimulates the effectiveness of R&D cooperation between businesses and research organizations. The [ALFA programme](#) addresses the environmental protection, among other topics. Research organisations as well as companies of all size can participate in this programme; the consortia of at least two partners are welcomed.

Information partially obtained from the [WssTP](#).

EE Estonia	EU Member State. Surveyed Funding: 0.6 M€/yr
	 <p>Haridus- ja Teadusministeerium Estonian Ministry of Education and Research</p> <p>Ministry of Education and Research</p> <p>EESTI TEADUSFOND Estonian Science Foundation</p> <p>Andke mulle toetuspunkt ja ma liigutan maailma ARCHIMEDES</p>

Research funding in Estonia covers baseline funds, infrastructure funds and research projects. Competitive targeted financing is annually distributed through programmes owned by the [Ministry of Education and Research](#). Its budget has doubled from 2003 to 2008. This is the largest share of institutional funding (larger than baseline and infrastructure funds together).

Project-based state funding is provided directly to individual scientists and research groups on a competitive basis, in three forms: targeted funding, ETF ([Estonian Science Foundation](#)) grants, and the [Archimedes Foundation](#) grants.

Targeted funding is the most important and sustainable source in terms of financing of specific research projects. The aim of targeted funding is to ensure a competitive basic structure for scientific research and continuity of the research areas needed for Estonia. These calls are open to all scientific fields and all research groups. Both basic and applied research is funded. The Estonian Scientific Competence Council (TKN) organises the peer-reviewing of submitted applications (mostly done by foreign experts) and advises the Minister on opening funding for new research themes and continuation of funding for previously-approved ones. The funding period for approved research topics is up to 6 years. In 2011, 214 projects are financed, adding to 23 M€).

The ETF allocates individual grants on competitive basis, to support high-level research, new ideas and studies. Funding is oriented particularly to young and promising scientists. Once a year, the ETF announces a call for research project proposals to Estonian researchers or foreign researchers working permanently in Estonia (entering qualification is the degree of PhD). The duration of a project may be up to four years. The ETF uses state budget appropriations to award research grants, in a total sum of around 7.9 M€ in 2011. ETF implements also the researcher mobility programmes ERMOS (post-doctoral grants, co-financed from 7FP CO-FUND) and Mobilitas (post-doctoral grants and top-researcher grants financed from European Social Fund). Annual budget for mobility programmes is around 3 M€.

Archimedes Foundation is an independent legal person established by the Estonian government in 1997 with the objective of coordinating and implementing different international and national programmes and projects in the field of training, education, research, technological development and innovation. It is the Implementing Agency of Structural Support for several measures, including administrative support to the ESF. Among their programmes, two are related to this JPI: [Environmental Protection](#) and [Health](#).

Additional sources: [CORDIS](#).



Survey Summary Results (per survey)

- [Archimedes Foundation: Environmental protection and technology R&D programm \(KESTA\)](#)
 - Total declared funding on water issues (M€/year): 0.3
 - Average duration of a project (months): 48
 - Average budget of a project (k€): 150
- [Health R&D programm \(TerVE\)](#)

- Total declared funding on water issues (M€/year): 0.3
- Average duration of a project (months): 24
- Average budget of a project (k€): 150

Country orientation towards JPI participation

- Country orientation to JPI objectives (summarizing results of all programmes):
 - Bio-based economy: medium
 - Sustainable ecosystems: high
 - Healthier water systems: high
 - Closing water cycle gap: medium
- Possible to fund foreign organizations? No
- Possible to allocate funds to Transnational programmes? Yes

LV Latvia	EU Member State. . Surveyed Funding: 0.85 M€/yr	
	 Ministry of Education and Science Republic of Latvia	 Academy of Science

Three different RTD programmes fostering research in all fields of science are owned by the Latvian [Ministry of Education and Science](#) and managed by the [Latvian Academy of Science](#). These programmes differ in the balance between research and innovation orientation and in the focus on cooperation between Latvian institutions.

The [Basic and Applied Research Projects](#) Programme serves the purpose of strengthening Latvian research potential. In line with this aim grants are primarily and in greater volumes allocated to applications by high-performance research groups and groups involving young scientists, as well as post-doctor fellows. The main beneficiaries of the programme are research groups at public research organisations. The National Research Program “[Climate Change Impact on the Water Environment of Latvia](#)” (2006-2009) is the result of Latvian researchers joining forces to investigate how climate change will potentially influence Latvian lakes, rivers and the Baltic Sea coast and coastal waters. Science-based proposals are being funded that propose solutions to adapt to foreseen scenarios and to mitigate adverse impacts.

The [Support for Joint Research Projects](#) Programme provides grants for networking among research groups of different research institutions of public sector. This programme is a specific extension of the Basic and Applied Research Projects Programme. The goal of the programme is to promote collaboration between several research organisations jointly applying for and implementing projects of economic relevance.

The [Support to Market Oriented Research](#) Programme aims at promoting integration of science and industry through development of technologically oriented sectors, promotion of industrial research and job creation. The goal of the programme is to encourage researchers from universities, research institutes and SMEs to develop new competitive products and facilitate the development of new start-ups. Industrial research and pre-competitive research projects are eligible for support within this programme. Grants range between 28 and 200 k€. Funding is allocated to Higher Education institutions, research institutes and companies.

Additional source: [CORDIS](#)

Survey Summary Results (per survey)
<ul style="list-style-type: none"> • Name: Climate Change Impact on the Water Environment of Latvia <ul style="list-style-type: none"> ○ Total declared funding (M€/year): 0.85 ○ Average duration of a project (months): 36 months ○ Average budget of a project (k€): 2.56
Country orientation towards JPI participation
<ul style="list-style-type: none"> • Country orientation to JPI objectives (summarizing results of all programmes): <ul style="list-style-type: none"> ○ Bio-based economy: medium ○ Sustainable ecosystems: high ○ Healthier water systems: high ○ Closing water cycle gap: medium • Possible to fund foreign organizations? No • Possible to allocate funds to Transnational programmes? Yes





Four Ministries have responsibilities in Lithuanian research related to water:

- [Ministry of Education and Science](#). It develops the State policy in research and experimental development; coordinates the activities of the research and higher education institutions; Drafts decisions on the allocation of State budget funds to the institutions of research and higher education; and organizes the assessment of the activities of the institutions of research and higher education.
- [Ministry of Economy](#). It is responsible for the formation and implementation of innovation and technology development policy in Lithuania and for the coordination of its implementation. The Ministry also takes the duty of providing incentives and support to company innovation activities.
- [Ministry of Agriculture](#). It organizes and co-ordinates applied research in the fields of agriculture, food industry and fisheries, which is necessary for the implementation of the Strategy of Agriculture and Rural Development and for the formation of regional and structural policies in agriculture and fisheries.
- [Ministry of Environment](#). It is the main governmental managing authority which forms the country's State policy of environmental protection, forestry, utilization of natural resources, geology and hydrometeorology, among other issues. The views of R&D institutions are often taken into consideration when designing and implementing environmental policies.


In addition, two specialized institutions implement research policies:

- [Research Council of Lithuania](#) is a state budget institution that acts as an expert on science policy and as an advisory body to the Parliament of Lithuania (Seimas) and the Government on strategic issues of research and higher education. It is actively involved in programme and competitive based research financing, also it contributes to the science policy formation and is involved in legislative issues of the Lithuanian science and studies system. The Council does not have a specific programme for water. The Research Council of Lithuania is responsible for the Joint Baltic Sea Research Programme BONUS, implemented under FP7 ERA-NET Plus scheme and Article 185 (previous 169) of EC Treaty. Certain marine water research issues are partially related to the objectives of the JPI. Other National research programmes such as “Lithuanian ecosystems: climate change and human impact“, and “Healthy and Safe Food“, develop activities related to the water JPI.
- [Agency for Science, Innovation and Technology](#) (established by the Ministry of Education and Science and Ministry of Economy). Its main objective to implement assigned programmes and measures encouraging innovation, R&D and active cooperation between business and science.

LU Luxembourg	EU Member State
	 Ministry of Higher Education and Research  Fonds National de la Recherche Luxembourg

The [Ministry of Higher Education and Research](#) is the owner of the [CORE](#) research programme, specializing in thematic research. This programme is managed by the [National Research Fund](#) (Fonds National de la Recherche, Luxembourg, FNR). The FNR serves all branches of science and the humanities with an emphasis on strategically aligned research domains. A yearly Performance Contract, concluded with the Ministry of Higher Education and Research, sets the budgetary frame for the well-defined short- and long-term objectives.

CORE is organized in thematic priorities. Research priority 2, Sustainable Resource Management in Luxembourg, includes the research line “Sustainable Management of Water Resources”. The 2011 budget for Sustainable Resource Management was 4 M€. Besides Water, this area also deals with energy, ecosystems, agriculture and urban development. Programme beneficiaries include public institutions, Luxembourg administrations and public services authorised to undertake R&D activities or technology transfer in their respective fields of activity.

MT Malta	EU Member State	
		

The [Malta Council for Science and Technology](#) (MCST) allocates state financing in the form of grants for research, development and innovation in science and technology through the “[National Research and Innovation \(R&I\) Programme](#)” which it administers. The Maltese Government allocated €1.1M in 2011 to Research and Innovation through this programme. The focus of the programme is technology transfer between academia and industry with specific focus on the four priorities identified in the National R&I Strategy, namely: Environment and Energy Resources, ICT, Value Added Manufacturing and Health and Biotech. The first priority, Environment and energy resources, focuses on solar, wind and bio-energy together with energy efficient technologies as well as water desalination, waste rehabilitation technologies soil and marine management. As a consequence, water research is explicitly contemplated in the research agenda of Malta.

Any Maltese legal entity may participate in a project is eligible for funding subject to specific terms and conditions. Foreign entities are eligible to participate in a project, but are not eligible for funding under the programme. Professional Bodies and NGOs are eligible to participate in a project, but are only eligible for funding under the programme in respect of an activity which adds value to the project and which does not itself fall within the normal sphere of activity, or within the services and consultancy normally carried out or provided, by the Professional Body or NGO in its ordinary course of operation.

Project proposals are submitted through an annual open call. Project costs range between €50K and €200K and are targeted to have a duration of between one and three years. Submission and evaluation are split into two stages: The first stage requests interested parties to submit a preliminary proposal. Following evaluation, these proposals are shortlisted to a final evaluation stage requiring proposers to submit a detailed proposal. In the case of a proposal which is selected for funding, the Project Coordinator is invited to enter into negotiations regarding the proposed project. Items for discussion may include financial estimates, deliverables, timeframes, IP agreement, externalization plan and consortium members. Following successful conclusion of negotiations, the Project Coordinator together with any other participants sign a Grant Agreement establishing the terms and conditions governing the financing of the project, including an IP agreement.



Competitive RTD funding in Slovakia is performed either via the [Slovak Research and Development Agency](#) (SRDA) or National R&D Programmes (financed by the [Ministry of Education, Science, Research and Sport of the Slovak Republic](#)). Both types of funding are based on grants and peer review mechanisms. Institutions managed by the Ministry of Education, Science, Research and Sport and by the [Slovak Academy of Sciences](#) channel about 60 % of total public support to research. Divisional ministries disburse some 20 % of total public support to research in the same year.

The Long-term Objective of the State S&T Policy up to 2015, the basic document on research policy, sets horizontal (cross-cutting) and vertical (thematic) levels of priorities. The R&D thematic priorities include information technologies, new materials, biotechnologies, nanotechnologies, energy and healthy lifestyles. The R&D general priorities include economic competitiveness, human resources development, internal and external state security and R&D integration into the European Research Area. No specific priorities have been identified on water research.


SRDA is the agency for distribution of public finances for research and development on the competitive basis in Slovakia. The Agency was established to support research and development (basic and applied research and experimental development) by providing funds for the implementation of the following types of the projects:

- Research and development projects in all fields of science and technology;
- Within the Agency's programmes; and
- Under international agreements on scientific and technological co-operation and Projects within international programmes and initiatives in the field of research and development including costs of their preparations.

At the moment there are running 6 projects dealing with water research supported by SRDA, and 2 projects supported by the Ministry of Education, Science, Research and Sport.

The only Slovak institution specifically performing water management research is the [Water Research Institute \(VRI\)](#). Its current activity is defined by the updated Foundation Charter issued by the Ministry of Environment of the Slovak Republic.

Additional sources: [CORDIS](#)

SL Slovenia	EU Member State	
	REPUBLIC OF SLOVENIA MINISTRY OF HIGHER EDUCATION, SCIENCE AND TEHNOLOGY	 Slovenian Research Agency

The [Ministry of Higher Education, Science and Technology](#) of Slovenia is the owner of the [National Research and Development Programme](#). Both are managed by the [Slovenian Research Agency](#). The Agency was established by the Government of the Republic of Slovenia, on the basis of its decision of 26 December 2003. The Agency performs professional, development and executive tasks relating to the National Research and Development Programme at every level, as well as other work to promote research and development activities. The Agency is an indirect user of the state budget in terms of the legal provisions that govern public finances and public agencies.

The [Research Group Subprogramme Financing Scheme](#) supports long-term basic research. Three to six year contracts are awarded for public funding of basic research in the field of natural sciences, engineering, medical sciences, biotechnology sciences, social sciences and humanities. Since its inception, this has been the largest source of public funding for research in Slovenia. The Research Group Programme is opened to the researchers in public research institutions, universities, independent education institutions and other research groups organised by public and private legal entities on the basis of concessions.

The [Target Research Subprogramme](#) was created for inter-sectoral cooperation in planning and implementing networked R&D projects for specific areas of public interest. They represent a special form of scientific and research programme with which the Ministry for Higher Education, Science and Technology intends to contribute to setting and implementing strategic development objectives for Slovenia in cooperation with other ministries and other interested users, in order to improve Slovenia's competitive capacity. Research within this subprogramme is problem-oriented and targeted towards improving Slovenia's competitive capacity

Specific research objectives have not been set for any of both Subprogrammes. As a consequence, water research is included but not singled out as a research target.

CH Switzerland	Associated Country, Surveyed Funding: 6.2 M€/yr
	 

The Swiss National Science Foundation ([SNSF](#)) is the most important Swiss agency promoting scientific research. It supports, as mandated by the Swiss Federal government, all disciplines, from philosophy and biology to the nanosciences and medicine.

The SNSF is actively involved in discussions concerning the realisation of a European Research Area (ERA) in which different levels of support for researchers would complement each other for the benefit of science in Europe. In order to contribute to shaping the ERA, SNSF is a member of both the European Science Foundation (ESF) and of EUROHORCs (European Heads of Research Councils), which it currently chairs.

The SNSF runs the research programme “National Research Programme ["Sustainable Water Management"](#), NRP 61. Programme objectives include: Development of scientific foundations, methods, and strategies as well as initiation of solutions for future challenges in the area of use of water resources; Investigation of the effects of climate and social changes on water resources; Examination of risk management and user conflicts from a comprehensive perspective; and Development of efficient and sustainable water resources management systems.

Survey Summary Results (per survey)
<ul style="list-style-type: none"> • Sustainable Water Management <ul style="list-style-type: none"> ○ Total declared funding on water issues (M€/year): 6.2 ○ Average duration of a project (months): 36 ○ Average budget of a project (k€): 400
Country orientation towards JPI participation
<ul style="list-style-type: none"> • Country orientation to JPI objectives (summarizing results of all programmes): <ul style="list-style-type: none"> ○ Bio-based economy: Low ○ Sustainable ecosystems: high ○ Healthier water systems: high ○ Closing water cycle gap: high • Possible to fund foreign organizations? No • Possible to allocate funds to Transnational programmes? Yes