

## EUROPEAN COMMISSION DRAFT CONSULTATION DOCUMENT for the stakeholders consultation on 20 October 2011

*This document presents first ideas and background information on the candidate European Innovation Partnership on Water. These ideas and related questions have been put together in order to fuel the debate with stakeholders which is a crucial step in the development of a draft proposal on the European Innovation Partnership on Water. The European Commission therefore welcomes any ideas and comments that could enrich the consultation process leading to the draft proposal.*

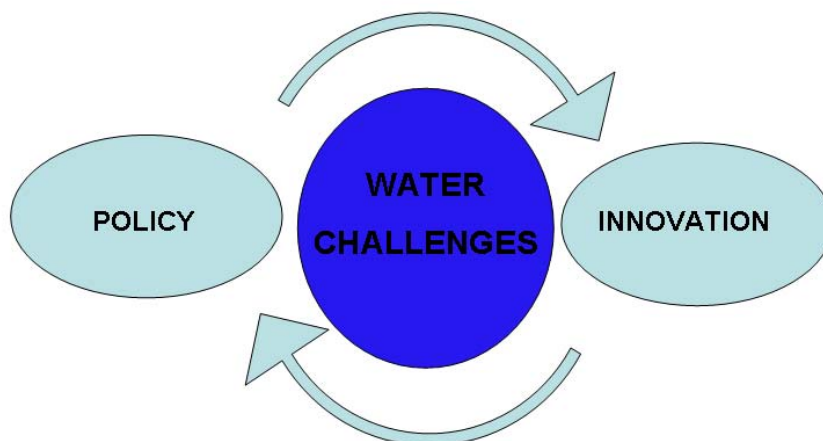
### European Innovation Partnerships

The Europe 2020 flagship initiative for an Innovation Union proposed the launch of a number of potential European Innovation Partnerships (EIP), including one on water. The objectives of these EIPs are to join up all actors and resources around common targets to speed up breakthrough innovations to solve specific societal challenges where there is also a large market potential for EU business.

#### 1. Title of proposed partnership / Overall objective:

#### **“European Innovation Partnership on Water”**

The strategic objective is to position Europe as a world leader in water technology and services by boosting innovation, promoting the creation of new market opportunities and by contributing to achieving the sustainable and efficient use of water, while at the same time use innovation to develop adequate and state of the art European water policy.



The aim of this strategic objective is threefold:

1. Through innovation develop solutions for the many challenges Europe (and the world) is facing with regard to water quality and quantity. These water related challenges serve as the driver of interaction between policy and innovation.
2. Through boosting innovation, create a global leadership position for European water technology and services, in line with the objectives of the Europe 2020 strategy.
3. Through mobilisation of all relevant actors at EU, national and regional levels, remove any regulatory and market barriers, promote the integration of various policy and finance

instruments and increase the demand for innovation, across all sectors and users of water.

***Question: Have the appropriate strategic objectives been formulated which need to be addressed by the EIP on Water? If not, which objectives should be added/modified?***

The European Innovation Partnership (EIP) on Water will be based on two key principles:

- A multidisciplinary approach – All relevant disciplines will need to be closely involved to deal with the water challenges. Technology is a key discipline, but innovation is much more and depending on the challenge may require involvement of technology, finance, governance, institutional, managerial or other disciplines.
- A multi-stakeholder approach. To be successful, the EIP will need the participation and commitment of all related stakeholders and existing initiatives with regard to water challenges. Particular attention must be paid to appropriate participation of businesses, industries, SME's and other private sector actors.

## **2. Societal challenge**

***Question: Are the challenges appropriately formulated? Are key elements missing?***

***Question: What should be the added value of putting in place an EIP?***

On June 21<sup>st</sup> 2011, the Council of the European Union concluded that 'while water availability and water quality are essential for sustainable development and green economy, waters face many threats including increasing trends of global population growth, urbanization, pollution, overexploitation, desertification and climate change. These challenges are threatening our societies, especially in many developing countries. Recent studies show that competing demands for scarce water resources may lead to an estimated 40% global water supply shortage by 2030. Therefore, to achieve water resources protection and sustainable water management, a more sustained effort is necessary by all decision-makers, users and stakeholders at all levels.' In this light, in the same Council conclusions, the Council highlighted the importance of innovation and therefore invited the Commission to 'investigate an innovation partnership on water in close cooperation with the Member States, with a view to achieving sustainable and efficient use of water.' (Council conclusions 21 June 2011)

An EIP on Water touches on two challenges – societal and economic, which are strongly interlinked:

From the societal point of view, the EIP will aim to provide innovative solutions with regard to water stress, both in quantitative as well as in qualitative terms (see box 1). Water stress, within and outside of the EU, will increasingly lead to social, economic, environmental and more frequently geo-political consequences. Having access to safe and sufficient water and sanitation are now recognized as a universal, inalienable human right (UN resolution of 28 July 2010) and Europe needs to find innovative solutions to secure the needs of its citizens with regard to this vital resource. By doing so, Europe can also play a fundamental role in supporting and interacting with other regions (EU Enlargement and Neighbourhood countries, developing countries) that deal with these challenges.

With regard to quantitative water stress, water scarcity and droughts already affect one third of the EU territory across different latitudes and they are projected to increase due to climate change. The increased frequency and severity of floods creates enormous human and economic costs for the affected areas. In northern Europe increased rainfall and floods already are

impacting civil society and ecosystems, whereas southern Europe will probably suffer increasing from water scarcity.

Water quality remains an issue across Europe, with implications for public and environmental health and bio-diversity. Pollution (excess nutrients, pesticides, toxic substances, waste discharges etc.) is still a top priority and a concern for all water users and the need to supply clean water in sufficient quantity fit for use and at a reasonable cost remains a challenge EU wide. Large urban areas and rapid industrialization have accelerated water problems due to waste water discharges. Ageing water infrastructure adds to the challenge by allowing water to be lost from the networks or to be contaminated. In addition, waste water leakages and untreated discharges of waste water through overflows result in pollution of water sources with potential public health risks. Innovative solutions will be required to address these issues in a cost-effective way.

With regards to developing countries, the persistent neglect of sanitation and drinking water in the broader development agenda threatens the survival and development of millions. One of the biggest challenges facing the water sector in developing countries is the increased pressure on scarce water resources in the face of climate change and population growth. In the last century water use has been growing at more than twice the rate of population increase. To deal with these issues, there is a crucial need to develop capacity and good governance structures in the water sector, and to strengthen the management of water resources to ensure environmental sustainability.

**Box 1 - water stress challenges**

Water stress challenges	EU	Global
Quantity	<p>In Europe as a whole, 45 % of freshwater abstraction is for cooling in energy production, followed by: agriculture, 22 %; public water supply, 21 %; and industry, 12 %. In southern Europe, agriculture accounts for more than half of total national abstraction, rising to more than 80 % in some countries. In western Europe, more than half of water abstracted is used for cooling in energy production.</p> <p>Over the past ten years, Europe suffered more than 175 major floods, causing deaths, the displacement of people and large economic losses. In northern Europe increased rainfall and floods already are impacting civil society and ecosystems, whereas southern Europe will probably suffer increasing water scarcity. A comparison of the impacts of droughts in the EU between 1976-1990 and 1991-2006 shows a doubling in both area and population affected.</p> <p>Innovations in water efficiency in industries can reduce the water footprint of manufactured goods, reducing the pressure on available water resources in both the EU and outside the EU.</p>	<p>Current total annual world wide abstractions are estimated at 4.500 Billion m3 and are expected to grow to 6.900 Billion m3 by 2030, creating a gap between water demand and supply of about 40%. These estimates are based on current average economic growth and water efficiency improvement projections</p> <p>Water scarcity in southern Mediterranean countries will likely exacerbate regional conflicts.</p> <p>The economic rise of China will result in a strong increase of water abstraction for industrial purposes, expecting to account for 40% of the world wide increase of water demand for industrial use.</p> <p>Population increase. Projections for 2025 indicate that the number of people living in water-stressed countries will increase to 3 billion – a six-fold increase, and in 2050 40% of the projected global population will live in areas with water stress.</p>
Quality	<p>Europe's freshwaters contain a number of pollutants including nutrients, metals, pesticides, pathogenic micro-organisms, industrial chemicals and pharmaceuticals. These can have adverse effects on aquatic ecosystems, degrading habitats and resulting in the loss of freshwater flora and fauna. Poor water quality can also raise concern for human health.</p> <p>A substantial proportion of Europe's freshwaters are at risk of not achieving good status under the EU Water Framework</p>	<p>More than 2.6 billion people in the world do not have access to improved sanitation, resulting in an annual death rate of 5 million persons, largely children, from water-borne diseases, and nearly 900 million people do not have access to an improved source of drinking water (based on the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2009). While progress towards the achievement of the MDG target for water is on-track, the world lags far behind on the sanitation target which is predicted to be missed by over one billion people. The biggest challenges will be expected in those areas with high population density and low water efficiency in agriculture, which are often</p>

	<p>Directive by 2015 (40 % of surface waters and 30 % of ground waters, in 2004).</p> <p>Despite improvements in some regions, diffuse pollution from agriculture remains a major cause of the poor water quality currently observed in parts of Europe. Agriculture contributes 50-80 % of the total nitrogen load observed in Europe's freshwater, with point discharges, including from wastewater treatment plants, providing much of the remainder.</p> <p>In 2008, ten of 12 waterborne disease outbreaks reported in the EU were linked to the contamination of private wells.</p>	<p>found in developing countries.</p> <p>Diarrhea remains the second leading cause of death worldwide of children under five, killing 4,000 children every day -- more than AIDS, malaria and measles combined -- and 88% of these diarrhoeal deaths are attributable to unsafe water, inadequate sanitation and poor hygiene (UNICEF WHO 2009).</p>
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The EIP will also help to provide solutions for other major societal challenges related to water, such as combating climate change, resource and energy efficiency or by strengthening the water/energy interactions. In fact, water is an integral element of energy resource development and utilization, it is used in energy-resource extraction, refining and processing, and transportation, and it is an integral part of electric-power generation (directly in hydroelectric generation and indirectly for cooling and emissions scrubbing in thermoelectric generation). Moreover, the development of alternative energy supplies, such as bio-fuels, and the proliferation of hydro and nuclear power, will place even greater strain on water resources. Legislation, appropriate institutional and financial tools and mechanisms, awareness, communication, participation and education, are essential drivers in helping to bring water and energy issues together and strengthen synergies and in helping the uptake of appropriate technologies.

From the economic point of view, the EIP will contribute to Europe's economic growth and competitiveness. There is strong economic potential for a well developed European water sector (technology development, utilities, efficiency gains in industry, better service provision, respond to consumer demands etc) that can drive economic growth, employment opportunities and market opportunities inside the EU and on a global level. Innovation, however, is required to face the current danger of Europe being outpaced in water technology and related development by other regions in the world (see box 2). If no policy is put in place to stimulate innovation, this may result in the need for Europe to acquire technology to deal with challenges from elsewhere, instead of seizing the opportunity to become a global market leader itself in water related innovation and technology. In addition, innovation is not only related to technology development, but needs also to be considered in respect to improving client services or business models, which in their turn will contribute to economic growth and competitiveness.

**Box 2 - Global developments in innovative water technology and management**

- It has taken only 5 years for the NEWATER reclamation plant in Singapore to develop from idea, through research and testing to full scale implementation.
- Singapore has established plans for public private partnerships for increasing water security and self-sufficiency during the post-2011 period, focussing on boosting efficient water management (formulation and implementation of water related policies, heavy investment in desalinization, extensive reuse of waste water, catchment management etc.
- China's 'green investments' totalled €155 billion in 2010, 9 times more than Europe's green investments that year.

### 3. Potential economic benefits and opportunities

***Question: Are there other significant economic benefits and opportunities that can be addressed by the EIP on Water?***

The European Water sector has a turnover of about €100 billion p.a., which represents about one third of the world water market. Of this, about €30 billion p.a. are spent in infrastructural works (new infrastructures, repair and renovation). Furthermore, there is an annual €10 billion of EU investments in the European water sector (drinking water and waste water). The EIP will boost the competitiveness and growth of the European water sector, which includes 9000 active SME's and provides 600,000 direct jobs in water utilities alone. The EIP will not only boost the competitiveness and growth of the European water sector, but also the competitiveness of other sectors involved in the development of products, techniques and services that promote the efficient use of water, reuse resources from waste water and save or even generate energy from waste water. Multidisciplinary innovation in the water sector can optimize the water cycle, avoid competition for water by different water users and create higher operational efficiencies for different sectors and industries. This will keep Europe competitive on the global level, help creating new markets and preserve jobs in Europe in various sectors. Each 1% of increase of the rate of growth of the water industry in Europe may mean between 10,000 and 20,000 new jobs. European eco-industries are growing by 5.9% p.a. in real terms with 7% employment growth (2000 to 2008), and our exports of eco-technologies are still by far higher than those of the US and Japan. 34% of those eco-technologies are related to either water supply or waste-water management.

Significant economic gains can be made by shifting the paradigm in waste water from cost to profit centre. Furthermore, the EU economy as a whole can strongly benefit from efficiencies with regard to the link between energy and water, by implementing integrated water resources management, reduce the needs of water for irrigation, the use of alternative water resources or reuse of water, the use of ecosystem services and prevention of loss of biodiversity etc. In addition, annually there are very significant losses in the EU as a result of floods and droughts, which can be partly mitigated by innovative water management solutions.

While European companies are world leaders in water services, they are relatively less competitive in the water technology segment. The EIP, however, will not only focus on technological innovations, but will address multidisciplinary solutions, especially in the field of innovative financial structures and governance approaches. It will also help to reduce complexity of the research and innovation landscapes, overcome fragmentation, define a common vision and mobilise resources to achieve technological breakthroughs more rapidly, and reduce time to markets. With this combination, the Partnership will strongly improve the ability of European companies to exploit the rapidly growing world market. For example, the market for water is estimated to be as large as \$ 1 trillion by 2020 due to a compounding effect of failing infrastructures, urbanization, industry growth and climate change<sup>1</sup>. In addition, where European companies now already collaborate with developments in China and Singapore, they deliver best practices and parts of the innovation cycle, which are then marketed by companies from those countries. Developing the entire innovation value chain in Europe will allow European companies to bring solutions to the market themselves.

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<sup>1</sup> David Henderson, Managing Director, XPV Capital Corporation, May 2011

Not boosting innovation in the water sector will not only bring the risk of potential global market opportunities to be missed, but may also result in a situation where (technological) solutions will have to be imported in Europe, as other countries have been able to develop more efficient and competitive solutions, making the urgency of supporting innovative solutions even more economically significant.

#### 4. EU value added

*Question: Is there other important EU added value in boosting water related innovation?*  
*Question: Are there clear obstacles to reach the objectives of the EIP on Water by organizing it on European level?*

Water touches on virtually all policy areas and is not confined to administrative borders. Water management is not a marginal issue; nor is it limited to a few Member States. The transboundary characteristics of water and the challenges that lie ahead require a holistic and integrated approach which can best be tackled on the European level, and applied at the river basin level.

Water scarcity, droughts, floods and water quality problems affect most European river basins, and many – like the Danube and the Rhine – are transboundary and cover the majority of the European territory. Even though the challenges in the water cycle are mostly felt on the regional or even local level, solutions need to take the entire water cycle at least at river basin scale into consideration. In addition, similar problems occur in different regions throughout Europe, creating an opportunity for disseminating solutions through the EU.

To face the water challenge, we must innovate to enable more efficient water use, good water quality and better water management and availability. This partnership will bring together the ingenuity and dynamism of Europe's private and public sectors by providing the right incentives and conditions to engage them as proactive players in achieving our EU water policy objectives. Currently, EU policy is primarily focussed on supply side of measures, i.e. research and development funding, without considering the link to demand side measures, such as market-based financial instruments, governance, regulatory tools, public procurement or ICT. However, the EU is, especially through an EIP, in a unique position to bring together supply and demand side policies which are needed to foster innovative solutions, address barriers to innovation and can provide the framework for the development and application of new standards or rules on public financing.

Innovation is a key aspect of the solution for water quantity and quality issues, but will only be effective if it is coordinated, in order to pool resources, avoid duplication and define common objectives. This can be best done at the European level. The EIP will function as a point of reference and coordination, bringing together existing European and national initiatives and the demand and supply side. By doing so, it can function as a driver to set the agenda of both the public and the private sectors. The EIP will support the cross-sectoral and transboundary approach which is needed and can facilitate the dissemination of tested solutions to other areas across Europe and the world which deal with similar problems. The policy approach of the Union, and those of individual Member States, need to be complemented by technology push and market pull innovation tools and by joint efforts of all relevant public and private stakeholders across the value chain in order to reach their objectives. Moreover, the complexity of innovative solutions to water problems will gain from the EU-wide approach of the Partnership, because the excellent European industrial, scientific and technological potential in the field of water is spread across the whole EU. In these areas, there are already several EU supported initiatives, like the Joint Programming Initiative on Water, the European Technology

Platforms, which aim to bring together the various existing local, regional or national projects and developments. The added value of the EIP lies in taking the water challenges as the starting point and then bringing together these already existing initiatives, which are focussed on their particular disciplines and have their different dimensions and realities. This will allow for an innovative and integrated approach, bringing together a wide range of stakeholders on the EU level and it can ensure a better transition from research to market application and adoption.

Moreover, an EU approach will be able to provide the necessary economy of scale, to develop and implement solutions and foster the dissemination of innovative solutions throughout Europe, and even outside. In addition, the EIP will create cross border opportunities for industries, in particular SME's, to find partners in developing innovative solutions throughout the entire EU, which would otherwise perhaps not have been able to be identified.

## **5. Proposed concrete objective(s)/target(s)**

*Question: Is the formulated objective appropriate?*

*Question: Are there essential objectives or targets missing which should be included in the EIP on Water? If yes, which?*

**In 2020 Europe will have safe, available and affordable water supply and waste water treatment for all users in place, based on sustainable management of the water resources and the most innovative, competitive and cost effective solutions.**

**In 2020,**

- Europe is applying the most appropriate, innovative and efficient technological, financial and water management tools to address water quality and quantity challenges.
- European water policy is state of the art, based on innovative solutions, promoting appropriate measures which take the regional diversity of Europe into account.
- A new collaboration model between research institutes, companies and SME's has been created.
- A framework is in place which enables innovations that addresses relevant water challenges to be disseminated and applied in practice, throughout Europe and on a global level.
- The time to market of innovations in Europe is shorter than in competitive economies.
- Medium size and large cities operate climate neutral (waste) water systems.
- Increased water efficiency in urban areas is realized, by lower domestic water consumption combined with reduced water losses in distribution systems and the use of alternative water resources.
- Damages as a result of water scarcity, droughts and floods are reduced with 20% through improved water management in rural areas.
- European companies have the largest global market share in water technologies and service solutions.

- Industries reduce the qualitative and quantitative impacts of their manufactured products on water resources.
- Establish mechanisms for stakeholder involvement and demand-side driven approaches to solutions to water management challenges.
- Achieve 20% energy improvement in water supply, waste water treatment and hydropower generation.
- A framework for the public health risks of harmful emerging compounds and pollutants is in place throughout the water cycle.
- The water footprint of all industries is reduced by 20%.

More concrete targets can be developed in the course of 2012, when the outline of the Blue print for Europe's waters, which will define policy options for the EU water policy, will become clear.

## 6. Key components/ work packages

*Question: Is the organization in the three proposed work packages useful? Could you suggest more appropriate work packages? If yes, please explain the rationale?*

*Question: Is the focus areas of the work packages appropriate? If not, please amend.*

The operational heart of the EIP will be the Innovation Sites. These are projects which can range from physical demonstration sites to test solutions, to cooperation projects to disseminate a proven innovation solution throughout Europe (also see section 7 – Governance). The Innovation Sites will be organized in three work packages to provide a structured approach:

- a) Urban water management
- b) Rural water management
- c) Industrial water management

Initially, each work package will have up to 10 Innovation Sites. Around each of these work packages a network will be created in which all stakeholders that are active in the Innovation Sites within a work package will participate. The network will develop a work program, which will provide guidance for the activities, which will allow for optimal coordination between the different Innovation Sites and enable exchange of experiences. In addition, the work package networks will also coordinate between each other to enable cross-fertilization between the activities in each work package. As there are certain themes that are relevant for all three work packages, such as the relation between water and energy, climate change or prevention of water pollution, there will be a horizontal thematic approach on these issues in which all three networks will work together.

Even though the organization in the above mentioned work packages takes a step away from the river basin management approach which is the rationale for European water policy, this organization is pragmatic in terms of coordination as it brings together activities on relatively similar challenges by mainly the same group of stakeholders. The coordination between the networks will ensure that the river basin approach is still taken into account when developing solutions.

### **a) Urban water management**

Urban water management is under increasing pressure as a result of further urbanization (over 70% of the population is expected to be living in urban areas in EU countries in 2030), increased consumption and the effects of climate change. At the same time, there is a large diversity in users of water resources, who all have their particular demands with regard to quality and quantity. To address the challenges, there is a need for an integrated approach with the urban water cycle at the core, involving all stakeholders that have an impact on or have to deal with water challenges. It will be of key importance to not only involve professional stakeholders, but to also ensure participation of citizens and the commitment of local governments to guarantee acceptance and uptake of innovations. Innovative solutions focussing on the relationship between water and energy, water consumption (domestic and industrial), water quality, water infrastructure, recreation and public health will be needed. There will be need for coordination with the candidate Innovation Partnership on smart cities, to ensure that initiatives on for example climate change resilience, energy use and spatial planning can create synergies from each other's activities and to avoid duplication.

#### **Box 3 - Potential focus areas in the urban water management work package**

- Decrease private water consumption in households, for example by the use of eco-design
- Decrease water loss in urban distribution systems and decrease disruption caused by infrastructural works
- Increase recapturing of resources from waste water
- Development of decentralized water and sanitation systems
- Climate neutral waste water treatment plants
- Reduction of energy consumption related to (waste) water treatment, distribution and use
- Develop alternative water resources such as rainwater harvesting, desalination etc
- Increase water re-use in the urban water system
- Increase efficiency of sludge utilization
- Develop indicators for sustainable urban water management
- .....

### **b) Rural water management**

Rural areas play a key role in the management of the water cycle. In the rural area, biodiversity, agriculture, spatial planning and land use management influence each other and may compete with each other with regard to the available water resources. To achieve a sustainable management of river basins, all these factors need to be taken into consideration in a holistic manner. In addition, rural areas can play an important part in the prevention of floods (using floodplains and retention areas to store water) handling problems of water scarcity and droughts. Innovation should bring together the various stakeholders such as (regional) water management and land use authorities, nature conservation organizations and farmers to optimise the use of the rural area while taking the needs for an effective management of the water cycle into account. In doing so, there is a strong relation to the candidate European Innovation Partnership on Agricultural Productivity and Sustainability, which will also address water quality and quantity issues. The EIP for agriculture, however, must deal with water management at farm level, as water is one of the production factors in agronomic activities, in addition to e.g. soil, energy or pesticides. The EIP for agriculture will therefore focus on farm level activities involving a sustainable use of water, to increase agricultural output. This will allow for important complementarities with the EIP on Water, which will focus on water efficiency in the rural area on the catchment level, taking into consideration spatial planning, land use management, biodiversity and agricultural pressures and benefits. The EIP on Water will address the interface between water management at the farm level and the allocation of water resources to agriculture at the catchment and water body level and the permissible pressure on water quality. Strong coordination and cooperation in both the planning and operational phases of the two Innovation Partnerships will ensure that the two initiatives will complement each other and will achieve synergies.

**Box 4 - Potential focus areas in the rural water management work package**

- Sustainable water management, allocation and supply in rural areas
- Enhancing water retention infrastructure
- Support of biodiversity through water management
- Use of the water system to combat flood and managing drought risks in relation to spatial planning
- Prevention of salt intrusion in coastal/delta areas
- .....

**c) Industrial water management**

Over the past years, industry, including small and medium enterprises, has proven to be a great catalyst of innovation in water issues. In many of the industries with high water use, like energy production or the chemical industry, innovations have already been implemented. Innovations in these industries to increase water efficiency in production processes will have positive effects on decreasing the total water footprint, inside and outside of Europe. Furthermore, innovations in industrial processes, IT applications and new technologies for more efficient treatment technologies will reduce costs and energy needs, decrease pollution and, in addition, can be instrumental in addressing the objectives of the UN millennium development goals on drinking water and sanitation. The EIP should focus on facilitating the possibility for industry and SME's to disseminate these innovations throughout Europe and on a global scale and in supporting a global market leadership position in water services and technologies for the European industry. The candidate Innovation Partnership on raw materials can provide important insights in the sustainable use of water in industrial processes, which will be coordinated with the activities under the EIP on Water. Furthermore, coordination should be established with the activities of the Technology Platforms on Mining and on Steel, the PPP initiative on 'Sustainable Technology for Resource Efficiency' by the Process Industry and other current or planned relevant initiatives.

**Box 5 - Potential focus areas in the Industrial water management package**

- Development and implementation of a 'symbiotic approach' – waste water treatment, reuse, recycling and materials recovery
- Reduce the water footprint of all industries, inside and outside of Europe
- Prevention of pollution at source
- Efficient treatment techniques
- Dissemination of innovations
- Energy production from salt water
- Reduction of energy needs for waste water treatment
- .....

**7. Governance**

***Question: Will the proposed governance model allow for effective decision making?***  
***Question: Will the proposed governance model allow for all related stakeholders to be involved and to play an active role?***  
***Question: Will the proposed governance model allow for the required interaction between different disciplines and between demand and supply side in the innovation chain?***  
***Question: Will the proposed governance model allow for an effective bottom-up approach in working on innovative solutions which can bring the desired change and results?***

The governance model of the EIP on Water should be flexible and simple to be effective. It needs to allow for a bottom up approach to identify areas in which innovations should and can be pursued, while at the same time ensuring commitment and a clear endorsement on the highest decision making level from all involved actors.

In order to ensure (political) commitment, a High Level Steering Group (HLSG) will be established. During a kick-off meeting, the HLSG will set the mandate for the EIP by adopting the strategic work plan and a multi-annual roadmap for 2011-2020. In addition, the HLSG will formally decide on which set of innovation sites will be established. The HLSG will be

instrumental in the start up phase of the EIP and will further meet at an appropriate time to make a mid term assessment of the progress of the EIP and, if necessary, to adjust the strategic work plan.

The HLSG have to have a balanced composition, in which both the demand and supply sides will be represented. The HLSG will therefore include representation from the public sector including European Commissioners, Members of the European Parliament, Ministers from Member States or national water directors, the Committee of the Regions and the Municipalities. Their commitment is instrumental to mobilise the appropriate financial resources and guarantee the uptake of innovative solutions.

There is an equal need for high level representatives from the various stakeholder groups throughout the value chain, including business representatives (industries, SME's, banks and other private sector actors), NGO's and water users organizations (agriculture, industry, energy etc.). The High Level Steering-Group also needs representation from the research and technology community, such as the Water supply and sanitation Technology Platform, European Technology Platform for Sustainable Chemistry, ACQUEAU and the Joint Programming Initiatives. To make sure that the important financial / economical perspective is sufficiently taken into account, there needs also to be representation from the European Investment Bank or other financial institutions.

To support the HLSG, a SHERPA group will be installed, to develop the strategic work plan and the multi annual roadmap. The Sherpa group will consist of representatives from the same sectors and organizations which are represented in the HLSG, on a more operational but still decision making level. After the kick-off of the EIP, the Sherpa group will give operational guidance to the EIP and drive the strategic process. This will ensure that there will be optimal coordination and cross referencing between the activities within the three work packages of the Partnership. In addition, this will allow the Sherpa group to support the High Level Steering Group in prioritising topics in the strategic work programme and to validate proposals for innovation sites, the need for which was identified as an important lesson learned in the pilot EIP on Active and Healthy Ageing.

The Sherpa group will monitor the developments within the work packages and their individual Innovation Sites. Furthermore, the Sherpa group will be instrumental in providing the link between research initiatives (in i.e. the Joint Programming Initiatives on Water or Urban Europe, Technology Platforms such as the Water Sanitation and Supply Technology Platform or the European technology Platform for Sustainable Chemistry – SusChem), initiatives of regional authorities (such as the Covenant of Mayors) or industry initiatives in the Innovation Sites. Through this method, the EIP can build on, and make use of existing networks and structures, and provide the added value of connecting them. In addition, it will develop dissemination strategies for innovations and identify where supply and demand can be matched. In the longer term, once the EIP (and its Innovation Sites) is fully operational, with well working networks in which all actors are represented and active, the Sherpa group will, in conformity to the High Level Steering Group, take a less prominent place.

The operational heart of the EIP is the 'Innovation Site'. For each of the possible three work packages (rural, urban and industrial water management) up to 10 innovation sites are considered to be established. The innovation sites are (large scale) projects, focussed on finding solutions for indentified challenges by putting into practice the multidisciplinary approach of bringing together actors from technological, financial, organizational and management perspectives (partnering and symbiosis), and testing the solutions. Outcomes and lessons learned

in the innovation sites will help designing demand-driven measures capable of boosting innovation in water management and to identify and address technological, economic and regulatory barriers. To ensure commitment in an Innovation Site, a Memorandum of Understanding can be signed between all involved participants in the Innovation Site. The innovation sites ensure the bottom-up approach of the EIP, as stakeholders can propose candidate innovation sites. The first set of potential Innovation Sites will be identified through appropriate EU calls, which will be initiated after approval of the candidate Innovation Partnership on Water by the Council and European Parliament.

In order to make sure there is optimal exchange of experiences between the innovation sites, and cross-fertilization between them is facilitated, networks will be established. There will be a network for each of the work packages which will consist of all the actors that are involved in the various innovation sites. Each network will have a coordination and exchange of experience function for the innovation sites under each work package and develop a work plan. Furthermore, within the network, the involved actors will be able to discuss and work on a general approach to tackle particular barriers to innovation that are relevant to their activities. In addition, the three networks will need to ensure coordination with each other, to enable the exchange of useful experiences and results between the work packages, in order to maximize holistic solutions for the water challenges that will be addressed in the innovation sites. The networks will furthermore actively engage in the horizontal themes that are relevant for all three work packages.

A secretariat will be established, coordinated by the European Commission, which will support the Sherpa group and the work package networks in for example the exchange of information and experiences between the innovation sites.

The European Commission will play an active facilitating role in the EIP, by giving support to the process where needed, to improve the regulatory framework if experiences from the EIP point to a need to do so, by continuing work on the development of standard, by actively looking for funding possibilities and by continuing a dialogue between different DG's to support coherent EU policy.

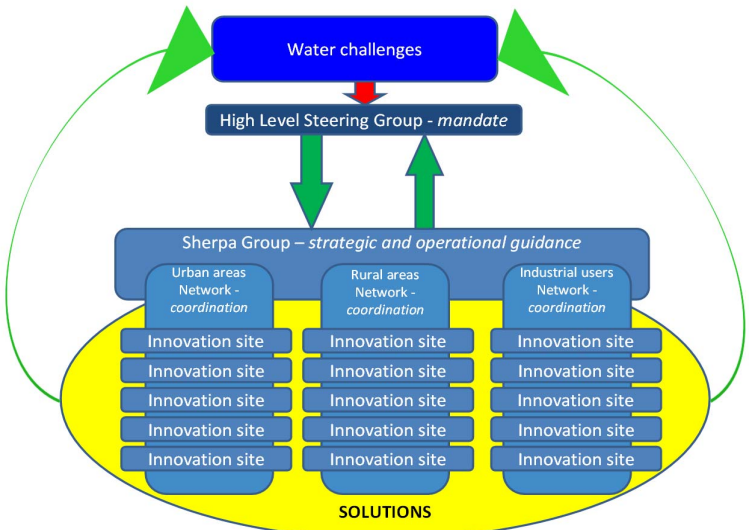


Figure 1. Governance structure in the short to medium term of the Innovation Partnership

**Box 6 - Governance structure**

Body	Members	Tasks	Meeting frequency	Secretariat support
<b>High Level Steering Group</b>	<ul style="list-style-type: none"> <li>Commissioners and MEPs</li> <li>Member States Ministers</li> <li>Other Public bodies: Regional authorities, Municipalities</li> <li>High level representatives of industry, businesses and SMEs (all relevant sectors)</li> <li>Research community</li> <li>Finance sector</li> </ul>	<ul style="list-style-type: none"> <li>Kick off meeting</li> <li>Set mandate</li> <li>Adopt strategic work programme</li> <li>Select first set of Innovation Sites</li> <li>Mid term review</li> </ul>	Only at kick off and mid term review	n.a
<b>SHERPA group</b>	<ul style="list-style-type: none"> <li>Same organizations as the HLSG, at operational but decision making level</li> <li>JPI Water, other relevant JPI's</li> <li>Technology Platforms (WssTP, SusChem)</li> </ul>	<ul style="list-style-type: none"> <li>Overall management coordination of IP</li> <li>Development of strategic work plan and coordination of implementation</li> <li>Development and adoption of multi annual roadmap (or adoption by HLSG)</li> <li>Collect feedback from the work package networks</li> <li>Monitor progress of Innovation sites</li> <li>Foster coordination between work packages and innovation sites</li> <li>Monitor and collect development and initiatives with regard to water, innovation, technology.</li> <li>Feed relevant information to the work package networks on developments</li> <li>Adopt potential new Innovation Sites</li> <li>Decide on funding</li> <li>Coordinate dissemination of results of Innovation Sites</li> <li>Stimulate global market position / explore and create opportunities</li> </ul>	1 to 2 times a year	Yes
<b>Work package network (one network for each of the possible 3 work packages)</b>	<ul style="list-style-type: none"> <li>Per work package, representatives from all relevant stakeholders for the work package.</li> <li>Per work package, representatives from each operational innovation site</li> </ul>	<ul style="list-style-type: none"> <li>Development of a work plan for each work package</li> <li>Supervision of innovation site development (progress, management, financial)</li> <li>Coordination between innovation sites within the work package</li> <li>Coordination and cross fertilization of innovation site results between work packages</li> <li>Identification of financial opportunities</li> <li>Development of dissemination strategies</li> <li>Identification of potential new innovation sites</li> <li>Reporting to and advising of SHERPA group</li> <li>Disseminate innovation / technology developments among innovation sites</li> <li>Discussion on innovation barriers and development of solutions</li> </ul>	3 to 4 times a year	Yes
<b>Innovation Sites</b>	All project partners of each innovation site	<ul style="list-style-type: none"> <li>Project coordination and implementation</li> <li>Financial project management</li> <li>Identification of dissemination possibilities</li> <li>Identification of financing opportunities</li> <li>Reporting of developments and results to the work package network</li> <li>Coordinate with other innovation sites</li> </ul>	To be decided by project	No
<b>Secretariat</b>	Secretariat staff	<ul style="list-style-type: none"> <li>Support European Commission</li> <li>Support SHERPA group</li> <li>Support work package networks</li> </ul>	Continuous	n.a.
<b>European Commission</b>	DG Environment DG Research & Innovation DG Enterprise DG INFSO DG Agriculture DG Climate Change DG Regio DG Energy DG Development Aid	<ul style="list-style-type: none"> <li>Develop / improve the regulatory framework</li> <li>Setting standards</li> <li>Identify funding opportunities</li> <li>Mapping of EU initiatives</li> </ul>	n.a.	No

## 8. Main obstacles to be addressed

*Question: Are the key obstacles to innovation properly addressed? If not, which are the key obstacles?*

*Question: What do you consider as other obstacles to making the EIP on Water deliver the required results?*

The objective of the EIP is to bring down the barriers to innovation. The network approach of the EIP will be well equipped to deal with many of the barriers that have been identified (both regulatory and market factors) as it brings together all disciplines and actors that are needed for a holistic and integrated approach, based on the demand side as the water challenges are the starting point. Through testing solutions in innovation sites, and bringing results into the selected network groups and ultimately to the attention of the High-Level Steering group, dissemination and active work on breaking the barriers can be taken and time to market for innovative solutions must be shortened.

Financing of innovation is a key obstacle which needs to be addressed. Many of the sustainable water technologies are currently in early stages of research, development or demonstration. Innovative financial instruments (equity and debt) should play a key role to ensure getting innovative solutions to the market. This can include a range of public support measures, e.g. promoting co-operation for research and technology development (e.g. joint ventures), public-private partnerships, subsidies for demonstration or equity and loans for deployment. Also public procurement rules need to be scrutinized, taking into account the specific characteristics of the water supply sector, with its natural (local) monopolies. Selective support to some key technologies can speed up learning curves and reduce risks, and thus can significantly accelerate their deployment.

By bringing together all involved actors in water challenges through the EIP, which enables cross-fertilization, results can be expected to address bottlenecks such as aligning timing of research and innovation with the timing of (new) regulation and looking for ways to deal with long and complex decision processes. A network structure will additionally deal with the fear of the unknown, which is often experienced with regard to asset life time, regulatory risks and financial risks, through sharing of experiences and exchanging ideas and approaches. The EIP will boost the ability for the water sector to take a leadership role and overcome the fragmentation caused by the large number of actors and the diversity of the sector, which can make market access costly, by organizing a joint effort on solutions.

Regulation and the use of 'old' standardization can prevent the diffusion of innovative technologies, as in the case of regulations that strongly limit water re-use (e.g. water quality standards for water used for irrigation). By bringing together industry, implementing organizations and regulators to jointly work on solutions and fostering better understanding of the interests and objectives of the various actors, better regulation may be developed in areas where this is needed, which is appropriate for the challenges that exist.

Annex I contains a table with barriers to innovation in the water sector, developed by the Eco-observatory in their thematic report 'How Eco-Innovation can contribute to the sustainability of Europe's water resources'.

## 9. Link with existing instruments and scope for simplification and streamlining

***Question: Are there other existing instruments missing?***

***Question: Are there other opportunities for streamlining and simplification?***

Several existing initiatives will be integrated into or closely coordinated with the proposed partnership allowing for simplification and streamlining.

A Blue print for Europe's waters will be presented by DG Environment by the end of 2012. This will bring together a 'fitness check' investigating the adequacy of existing EU water policy and the identification of targets on which water policy should focus. The EIP will align its targets to the development of the Blue print in the course of 2012 and will be instrumental in supporting the further implementation of EU water policy and to provide solutions on certain priority challenges identified by the Blue print.

In the field of water, especially water research and technology and related policy areas, already a wide variety of European (and national) initiatives are being developed. Most of these activities, however, are not properly linked together or are focussing on a particular discipline with regard to water challenges. The EIP aims to become an 'umbrella' initiative, bringing together all these initiatives to pool them, make use of all their activities and experiences to work towards innovative solutions, thereby supporting the broad objectives of the EIP.

### **Box 7 - Relevant existing initiatives and funding mechanisms**

- Technology Platforms: The Water Supply and Sanitation Technology Platform (WSSTP) and the European technology Platform for Sustainable Chemistry (SusChem)
- The Joint Programming Initiative 'water challenges in a changing world' proposed by a group of Member States (led by ES & NL) will deliver important possibilities for synergies, providing the research component which will be combined with innovative governance, managerial and financing structures to support innovative solutions.
- The European Institute of Innovation and Technology (EIT) launched the Climate Knowledge and Innovation Community (Climate-KIC) which covers adaptive water management.
- EC RTD Framework Programmes have traditionally provided substantial support to the water research projects in various sectors and themes (e.g. environment, food and agriculture, materials, nano-sciences and nanotechnologies, ICT, space, security, etc.) - approximately €130 million have been spent annual for water related research projects in the last 10 years
- LIFE+ projects provide support for demonstration activities in the water sector and linking research prototype applications of innovative technologies.
- The Common Agricultural Policy (CAP) supports investments to sustainable water management practices in rural areas, especially, conserve water, improve irrigation infrastructures and enable farmers to improve irrigation techniques.
- The CIP programme has allocated approximately 200 million Euro for the period 2007 – 2013 to support the replication and first application of eco-innovative solutions and technologies.
- The well-established CIS (Common Implementation Strategy) for the Water Framework Directive and more particularly the ad-hoc science-policy interface (SPI-CIS) activity will allow for integration of partnership results into policy.
- EU Structural and Cohesion funds can provide the necessary funding to implement solutions that will be brought forward by the Innovation Partnership on a wider scale. Coordination is needed with the timing of the Operational Programme of the funding programmes of DG Regio to align objectives and ensure synergies.
- EU development aid and cooperation projects and initiatives i.e. the EU India cooperation initiative
- .....

## 10. Stakeholders to be involved:

***Question: Are the appropriate stakeholders identified? Are there important stakeholders missing? If yes, which?***

***Question: What will make it interesting for you as a stakeholder to actively participate and contribute to the EIP on Water?***

As water is linked to so many sectors, working on holistic and integrated solutions will require the involvement of a wide variety of stakeholders from many disciplines. From the public authorities this will necessarily include the Member States, the European Parliament, regional

authorities, municipalities and river basin authorities, as well as regulators and environment agencies.

The involvement of public authorities is essential as they have direct responsibilities in providing the enabling environment for innovations, set rules for procurement, play an important role in the implementation of (water) policies and can provide opportunities for testing environments for innovations, which may be not available through the market.

The private sector (water services industry, major water using industries, water technology producers and small and medium enterprises which are active throughout the value chain) will need to be involved and also will have to show a clear commitment through providing private funding and resources for development of innovation in order to make the EIP successful.

Furthermore, the various existing research and technology institutes and networks need to be involved, as well as major water user groups such as agriculture organizations and energy producers. In addition, involvement will be required from NGO's, consulting engineers and practitioners in the field, as well as the banking, financial and insurance sectors.

## 11. Roadmap

***Question: Is the proposed roadmap in line with expectations and will it be able to support timely work on innovative solutions? If not, what should be modified?***

If agreement is found on main aspects for a candidate Innovation Partnership on Water, the following steps will be taken to ensure a well developed proposal for adoption by the Council:

- Intensive Commission Inter departmental consultations in particular with most relevant DG's (R&I, ENTR, INFSO AGRI, ENER, REGIO, CLIMA, JRC, ... )
- Stakeholder consultations. A number of stakeholder consultations will be organized for all related and interested stakeholders, to ensure a solid feedback and understanding of the needs and interests from all involved actors. This may include dedicated workshops to discuss specific elements of the EIP.

This consultation procedure will deliver a final proposal for the EIP, to be presented in an EC communication by June 2012. The EIP will be, after endorsement by the European Council and European Parliament, operational by early 2013.

Steps after adoption of the EIP:

- Establishment of the High-Level Steering Group (Autumn 2012)
- Establishment of the Sherpa group and work package networks (Autumn 2012)
- Establishment of a dedicated website for stakeholders and involved actors with up to date information on the strategic work programme, innovation sites, developments etc. (Autumn 2012)
- Presentation of the Blue Print of Europe's water (Nov. 2012)
- Identification and selection of the innovation sites (End 2012)
- Launch of Innovation Sites by early 2013
- Evaluation of the EIP on Water (2015)
- Adoption of second set of innovation sites (in case of positive assessment) by 2016

**Annex I** - barriers to innovation in the water sector, developed by the Eco-observatory in their thematic report 'How Eco-Innovation can contribute to the sustainability of Europe's water resources'.

Classification of drivers and barriers to water eco-innovation:

		Barriers	Drivers
Micro (firms)	Economic and financial	<ul style="list-style-type: none"> <li>. Cost of water relatively low access to finance for risky eco- innovations (notably SMEs)</li> <li>. Too high cost of infrastructural upgrades</li> <li>• Problem of appropriation of profit from innovation</li> </ul>	<ul style="list-style-type: none"> <li>. Growing cost of water and the prospect of the full-cost pricing of water</li> <li>. The possibility of recovery of energy and resources from waste water</li> <li>. Global demand for water efficient solutions and technologies (market potential)</li> <li>. Tax-breaks for water-efficient technologies</li> </ul>
	Technical and technological	<ul style="list-style-type: none"> <li>. Predominance of existing technological solutions (choosing existing tested technologies rather than getting involved in R&amp;D)</li> <li>. Lack of consistent standards means that it can be difficult to design one product or technology to sell into many markets</li> </ul>	<ul style="list-style-type: none"> <li>. Availability of new tested technologies (possibility of technology transfer and upgrades)</li> </ul>
	Environmental	<ul style="list-style-type: none"> <li>• Stringent environmental legislation means that new technologies must meet very high performance criteria</li> </ul>	<ul style="list-style-type: none"> <li>. Geological and geographical context: existing and current water scarcity and variability (both in Europe and in the global dimension)</li> <li>. Water pollution</li> </ul>
	Social (human capital, networking and knowledge base)	<ul style="list-style-type: none"> <li>. Many water utilities have established supply chains and these are dominated by large corporations meaning that entry to market is difficult</li> <li>• Perception of the importance of water in terms of public health - risk-aversion of buyers</li> <li>• Water not a visible market for those companies unfamiliar with the sector</li> </ul>	<ul style="list-style-type: none"> <li>. Perception of the importance of water (link to health and safety)</li> <li>• Increased public awareness of water stress, water foot printing etc.</li> </ul>
	Regulatory and policy framework	<ul style="list-style-type: none"> <li>• High barriers to entry in terms of registration and compliance costs</li> </ul>	<ul style="list-style-type: none"> <li>• Need to comply with regulations, notably EU directives (incremental changes)</li> </ul>
<b>Sub-system</b> (sector, value chain, product system)	Economic and financial	<ul style="list-style-type: none"> <li>. Water price too low to support significant investment in water innovation in water-intensive sectors, e.g. agriculture, energy</li> </ul>	<ul style="list-style-type: none"> <li>. The future prospect of full-cost pricing of water</li> </ul>
	Technical and	<ul style="list-style-type: none"> <li>• Technological lock-ins:</li> </ul>	<ul style="list-style-type: none"> <li>• ICT and logistics (e.g.</li> </ul>

	technological	old water supply and waste water treatment infrastructures • Energy generation infrastructure and processes (e.g. use of cooling water)	real time monitoring) • Industrial symbiosis and other closed-loop processes
	Environmental		• Water scarcity and variability, relevant notably for water intensive sectors (such as agriculture, energy etc) and in specific regions (e.g. south Europe)
	Social (human capital, networking and knowledge base)	• Lack of collaboration in the water value chain (problem differs among countries) • Conservative, risk-averse ownership. Familiarity with established technologies and suppliers.	• Supply chain pressures resulting from water foot printing and eco-labeling
	Regulatory and policy framework	• Regulations not recognizing sectoral specificities of water use	• Need to comply with regulations (regulatory push)
<b>Socio-economic system</b>	Economic and financial	• Water pricing • Water as a public good (problem of privatizing profits)	• Increased awareness of water scarcity and quality • Greater level of metering
	Technical and technological	• Old water infrastructures (i.e. combined sewer systems) • Expectation of clean water on tap and wastewater removed at the push of a button	• Renewal of aged infrastructure offers opportunity to employ radical alternatives instead of employing 'the same old ways of working'
	Environmental	• Water environment is a 'common good' and not perceived by individuals as 'their issue'	• Increasing or imminent water scarcity and variability • Extreme weather conditions (growing rainfalls and floods)
	Social (human capital, networking and knowledge base)	• Fragmented research and development efforts in the water sector • Aversion to re-use of 'grey water' and 'black water'	• Perception of water as a vital resource linked to the quality of life and health
	Regulatory and policy framework	• Ownership and governance regimes of water infrastructure and utilities • Risk-averseness in investing in water innovation	