



**Implementation
of Responsible Research
and Innovation
for the Water JPI
through science-society-policy
interfaces**

**A practical guide
for the Joint Programming Initiative
“Water challenges for a changing world”**

Implementation of Responsible Research and Innovation for the Water JPI through science-society-policy interfaces

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1- CONTEXT AND RATIONALE

From “Responsible research and innovation, science and technology – Special eurobarometer 401”, “77% of respondents think that science and technology have a positive influence on society overall” and “just 40% of respondents say they feel informed about developments in science and technology, and 53% say they are interested in this area”.

To face this discrepancy, the European Commission promotes the “**Responsible Research and Innovation**” (RRI) approach in Horizon2020. RRI means that societal actors work together during the whole research and innovation process in order to better align both the process and its outcomes, with the values, needs and expectations of European society.

Responsible Research and Innovation is:

- doing science and innovation with society and for society, including the involvement of society ‘very upstream’ in the processes of research and innovation to align their outcomes with the values of society;
- a wide umbrella that brings together different aspects of the relationship between research & innovation and society: ethics, gender equality, open access, public engagement, and science education;
- a key concept at Horizon 2020, the EU's Framework Programme for Research and Innovation 2014-2020, since the main aspects of RRI have been adopted as cross-cutting issues in this programme.

Additionally, from “*Indicators for promoting and monitoring Responsible Research and Innovation Report from the Expert Group on Policy Indicators for Responsible Research and Innovation – June 2015 - EUR 26866 EN*” it is stated that “**to be responsible in general and in the specific terms of RRI include three dimensions: performance, perception and key actors.**”

2- How could the Water JPI contribute to RRI: interfaces between science, society and policy

In this context, to contribute to RRI approach, the Water JPI:

- ensure that decisions and programming taken through it are shared with society and are in line with their prime expectations
- seek that all relevant scientific research carried out as part of a joint programming activity is effectively targeted to integrate citizens' visions and communicated to relevant water policies and water management needs
- seek that all scientific information produced through its joint calls are effectively transferred to and used by targeted audience (water managers, policy makers, water supply and sanitation utilities, but also environmental associations, citizens 'observatories related to water issues).

The Water JPI may strengthen and improve the process in the upcoming years that leads to:

- **Performance:** through the production of useful research outcomes in line with stakeholders such as water managers and policy makers needs and expectation and through helping research institutes in programming their work in line with societal needs; The Water JPI is in an early stage with the launch of the first RDI projects in March 2015
- **Perception:** through priority communication of useful research outcomes arising from scientific research projects supported by the Water JPI
- **Key actors:** through ensuring the involvement of all key stakeholders concerned by the process leading to evidence-based water management, to which the Water JPI contributes (ranging from civil society to policy makers, passing through scientists and knowledge brokers).

To achieve this, Water JPI may implement science-society-policy mechanisms at various levels. Such interfaces may be implemented not only at the European level through the Water JPI mechanism but also at all national levels (level of the members of the Water JPI) as a complementary process allowing bringing to Water JPI activities additional specific national views and expectations related to science development.

3- Objectives and roles of a science-society-policy interface in the water domain

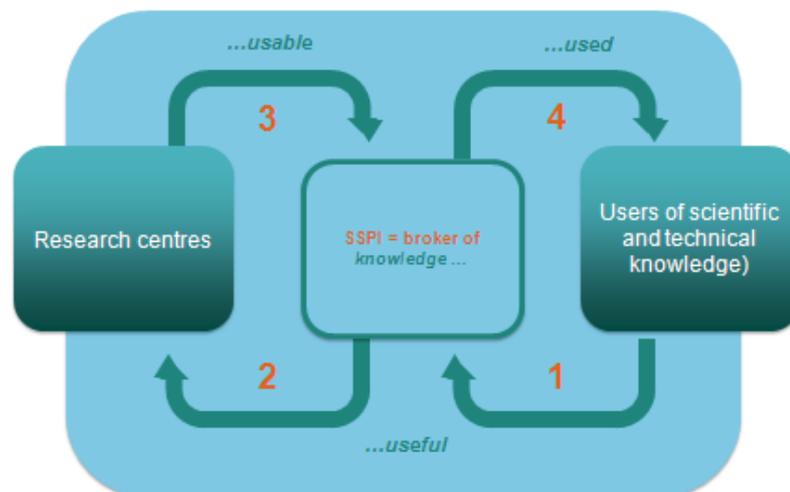
A science-society-policy interface (SSPI) facilitates dialogue between scientists, researchers and water managers, representatives of industries and enterprises and takes into account relevant socio-economic implications. It allows all key stakeholders to express their needs and information required for specific management decisions. Such information and feedbacks can then be transferred to the scientific community.

It increases the evidence-based water policy developments by: doing so that the robust, adjusted scientific research outputs, aligned with society and policy needs, be transferred to the policy or management side, doing so that the science be useful, useable and actually used in water policy developments and implementation, also reducing the institutional costs of policies implementation.

A SSPI endorses several activities contributing to enhancing science-society-based policy development and promoting mutual learning and mobilization as Figure 1 presents. It has to facilitate the expression of policy needs for scientific knowledge and to develop a common understanding of these needs (step 1 in Figure 1), and to identify existing scientific knowledge while influencing development of research agendas in order to match the needs not already fulfilled with the existing science (steps 2 and 3 in Figure 1). It has to ensure and do so that knowledge matching the users' needs is actually transferred to end users (step 4 in Figure 1).

Finally a SSPI for the Water JPI contributes to increase the quality, the relevance, the social acceptability and therefore the sustainability of research and innovation carried out in the water domain.

A science-society-policy interface mechanism helps produce science actually used by final users by ensuring several major steps:



- 1: assess the needs of users (e.g. citizens, water managers...) depending on their specific jobs
- 2: encourage development of knowledge which will be "useful" to meet these needs
- 3: collect the "usable" knowledge
- 4: transfer knowledge in adapted shape, content and format so that it is effectively used

Figure 1: Science-society-policy interface activities

Figure 2 summarizes the major impacts of an SSPI: these impacts range from facilitating the expression of needs to the actual transfer of gained or existing knowledge, through improvement of research collaboration and calls for projects and research programming.

Often a knowledge broker (who could be either an individual or an organization) is a major actor of this interface: he will energize, conduct and facilitate the process summarized in figure 1. Knowledge brokers are (either an individual or an organization) skilled experts dedicated, trained, and resourced to engage in the SSPI. They are facilitators and relay people. Their specific role is to assist policy makers in the formulation of scientific and technical questions, to enhance the scientific knowledge transfer to the policy makers and to contribute to keep research aligned with policy needs and adjust research to evolving policy if needed.



Figure 2: Major roles of a science-society-policy interface

4- How to implement a science-society-policy interface for the Water JPI

Related to Figure 1, below are presented the main facilitating factors for Water JPI to implement and maintain a science-society-policy interface contributing to RRI approach.

Branch 1: Assessing the needs of key end-users

All Water JPI members, observers (involved in the different governance structures – Governing Board, task forces, CSA or Eranets) and the Advisory Boards members should be involved in the SSPI, in particular in this step where the needs of end-users are assessed. They should also be proactive in involving other relevant stakeholders at national and European level, in particular representatives of the economic sectors which are sometimes left aside by this type of public-public initiative.

The Water JPI strategic research and innovation agenda (SRIA) has been conceived as a participatory, inclusive, shared and forward-looking document that sets out RDI directions. As such, it builds upon the views and SRIAs of national (and regional) partner Member States, foresight studies, the strategic agendas of all the actors involved in water management, and feedback from internal and external consultations. In this sense, the methodological approach of the SRIA is inclusive and participatory and it attempts to overcome the current fragmentation of the water sector.

Two stakeholders' workshops (including all stakeholder communities, in particular the economic sector) were also organised for discussing RDI needs and defining priorities for the future Water JPI activities. Two public consultations were organised on line for engaging with a broader audience and collecting feedbacks.

With a view to consolidating this process which aims to ensure that research conducted under the Water JPI best contributes to societal benefit and to seek for a positive impact of the work (by notably matching the needs of users, whether it is policy makers, society, industry or something else), the Water JPI may implement a regular process (at European and national levels) aiming to evaluate the policymakers and water managers needs of operational scientific information. A specific and regular process should be conceived by the Water JPI members and implemented possibly at national levels in close coordination of possible existing process.

The development of a knowledge hub on water challenges will be assessed during the WaterWorks2015 Eranet Cofund (to be started beginning of 2016, under a specific work package on additional activities). For the Water JPI funded calls, and when suitable, the participation of end-users in the projects is highly recommended (in the call contents and in the evaluation criteria). Additionally, research projects funded by Water JPI calls should adopt this way of evaluating final users' needs in their development.

Branch 2: Encouraging development of knowledge

Already the Water JPI joint calls are sought to be in line with the priorities of the SRIA. Then through the calls, Water JPI influences knowledge development to match the needs assessed beforehand. The identification of the existing scientific knowledge (through a RDI projects database) in combination with the development of new one (via the joint calls) is currently conducted under the Task Forces on H2020 and alignment activities. This may be implemented more efficiently at all national levels in order to harvest also the national research outputs.

Branch 3: collecting the “usable” knowledge

A huge amount of knowledge is produced either thanks to the Water JPI joint calls or through another way (e.g. FP / H2020 calls, national / regional RDI work programmes, other institutions). To avoid any loss, the Water JPI could develop a process consisting in assessing the existing scientific knowledge likely to match at least partly the needs of key end-users and in particular the water managers.

Additionally, the knowledge produced must be usable. That means that it must be shaped in such a way that end users can potentially use it more or less directly. The Water JPI funded projects are requested to follow Open data / Open research rules (cf. Eranet Cofund rules transposed in the calls funded by the Water JPI).

Branch 4: transfer knowledge in adapted shape, content and format

An important final aspect is to ensure that every effort is made to ensure that the knowledge gained by the research is effectively used by the end-users. To do so, the Water JPI which started its knowledge development activities 2 years ago will strengthen the knowledge transfer (at a European or at national levels) through the development of a knowledge hub (under discussion within WaterWorks2015 Cofund action)...

As discussed in the Water JPI Paris governing board meeting (November 2015), the future work programme of the Water JPI and its members will include to organize this transfer (via workshops for instance).

To the maximum possible extent, in addition to the communication work packages, transfer obligations and open data required in all projects conducted thanks to a Water JPI joint call, projects coordinators and partners must be made aware of the RRI approach and be implementers of Science-Society Policy Interfaces in their activities.

5- SSPI in the Water JPI: key factors

Key Factor 1: Establish a “Community of practices” (CoP) to ensure the effective and efficient operating of the Water JPI science development.

The CoP is a consistent group of stakeholders including policy makers, water managers, scientists, Water JPI coordinators ensuring a multidisciplinary approach, formed to be the permanent actors of this interface. It should engage stakeholders from all the scales of the water management (and around the world) (see Figure 3).

The primary goal of the CoP would be to contribute to the implementation of all the work components of the SSPI as presented in the Figure 2 above. It will contribute to the decisions related to the elaboration and updating of the SRIA and Implementation Plan, the selection of topics for the launch of joint calls, the uptake of the results produced by the funded projects and other joint activities. The Water JPI advisory boards may form the basis of the CoP.

Additionally at the national levels such communities may be useful to set to support national representatives in their input to the Water JPI.

And moreover it is essential to duplicate such CoP into the joint calls projects consortia themselves. These consortia are the place where the final users of the projects may express their needs all along the project life.. The Water JPI highly recommends the involvement of end-users in the consortia or in the advisory boards and considers this in its evaluation criteria for funding projects.

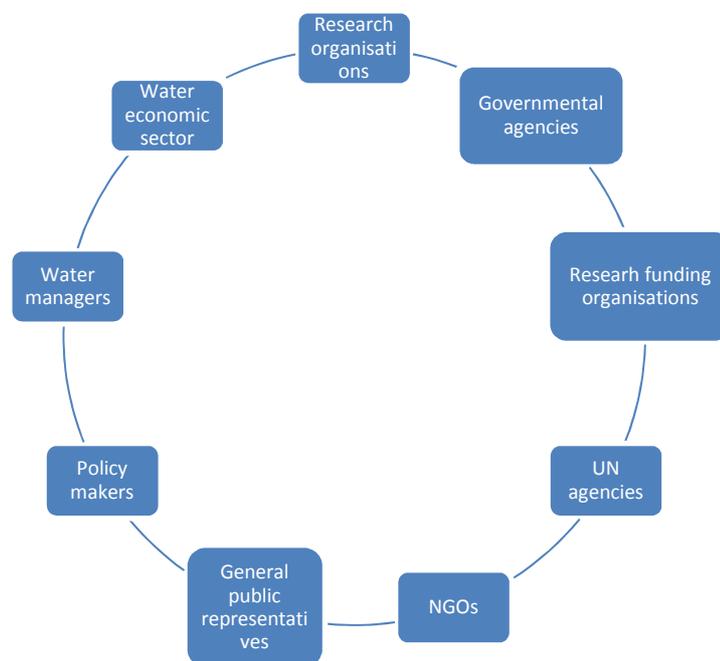


Figure 3: The SSPI community of practices

Key factor 2: Appoint Knowledge Brokers/ Facilitators/ Relay People.

Knowledge brokers (KBs) are skilled experts dedicated, trained, and resourced to engage in the SSPI and facilitate the implementation of all the components presented in figure 1 and figure 2. They are facilitators, mediators and relay people. Knowledge brokers are of course part of the CoP. Their specific roles are:

- to assist policy makers and water managers in formulating their operational and technical questioning and need;
- to transform these operational questioning in scientific issue, with scientists;
- to contribute to keep research aligned with policy needs, and adjust research to evolving water policy if needed to influence joint programming, SRIA...;
- to enhance the scientific knowledge transfer to the end users (policy makers, water managers, stakeholders). In addition to the quality of the submissions, it will also be important that information is shared in a way that policy makers and environmental managers can use and understand it; KBs play an important role in seeking scientific information dissemination in an appropriate way

The role of the Water JPI in this area should be discussed at Governing board level as:

- This cannot be done by the Water JPI alone – to be efficient, this should be done at the relevant scales (for example in native languages for the Public, with the relevant key actors at national or regional level)
- Some of these activities have been discussed with the Advisory Boards in June 2015 and could be undertaken by some of them on request
- This could request a specific budget which is not existing for the moment at the Water JPI level (vs. European Commission activities in this field – JRC tasks, or national / regional member activities).

Key factor 3: Ensure means are dedicated to transfer of knowledge in the research projects.

The Water JPI should encourage the projects financed by the Water JPI joint calls to address the issue of transfer of results to end-users (water managers, etc.) and ensure its implementation.

6- How to implement the Water JPI science-society-policy process?

Already of course the Water JPI - and its associated CSA WatEur and ERANET-Cofund - undertakes partly an SSPI process. A scanning of Water JPI activities (covered by different instruments / projects) in relation to science-society-policy interface is presented in the table below. Suggestions for strengthening some of these aspects are presented in this table:

Main task of a SSPI in Water JPI	Proposed additional actions to Water JPI roadmap if approved by GB
Identify knowledge brokers to accompany the SSPI activities in Water JPI	Set a knowledge brokering activity in the Water JPI at the relevant levels (e.g. for the public at the national / regional levels)
Identify who does what in the research domain in Europe and at international level	Revision of the mapping – first exercise done in 2014 – Under revision at the moment
Develop a community of practice favoring dialogue between scientists, policy makers, implementers, stakeholders	By following the recommendations above, form communities of practices both at European (Water JPI members) and at national levels (each JPI member country) aiming to connect with water managers, policy makers etc. and accompany the implementation of RRI in the Water JPI
Identify the operational questioning of end-users - SRIA development and revisions	Organize needs assessments with the means of communities of practices both at European and at national levels - National formal evaluation should be developed (on the basis of a coherent and shared format to be developed), as a sine qua none condition?
Transform the operational needs of water managers in research theme Orient the research agendas and knowledge development - SRIA development and revision	Strengthen the link between SRIA and joint calls topics Ensure joint calls consortia involve end users representatives (water managers, water policy makers, stakeholders)
Value the research projects outputs; ensure knowledge is transformed into usable products (language, form...)	Develop the foreseen Knowledge Hub (as planned in WaterWorks2015). Strengthen the need to address knowledge valuing through policy briefs, publication, posters, guides... in the projects supported by the Water JPI joint calls
Actually transfer (or ensure it's done) research outputs to policy makers, implementers and stakeholders	Strengthen the obligation to address knowledge transfer through policy briefs, publication, posters, guides... in the projects supported by the Water JPI joint calls