

Collaborative tools and processes for connecting policy and science

Hands on approach



The purpose of this handbook

The PSI-connect project has a distinct focus on providing tangible, practical outcomes in the shape of easy-to-use tools and processes for creating constructive conversations between policy makers, scientists and stakeholder communities. This handbook is based on examples drawn from best practices in 'real life situations'. It takes the reader through the steps necessary for a successful knowledge brokering process which supports policy-science interactions in the field of water management and climate change.

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Why is knowledge brokering important for Europe's water policy?

The Water Framework Directive has transformed approaches to water management in Europe. It addresses the river basin scale, prompting new approaches that can deal with the water system as a whole. It also promotes the participation of a variety of stakeholders with different interests and types of knowledge. Information and knowledge from diverse sources are the basis for effective evidence based policy making.

What information and knowledge is needed from different scientific disciplines to inform river basin management? How can we elicit knowledge from a variety of stakeholders and how can we share this knowledge for water policy and management?

The PSI-connect project addressed these questions by organising and evaluating knowledge brokering activities within water policy and management processes. This booklet reports on the lessons learnt from these experiences and provides practical guidance on the planning, design and execution of knowledge brokering activities.

Knowledge brokering in river basin management

Knowledge brokering is a participatory process in which scientists from different disciplines and backgrounds work together with policy makers from relevant sectors and domains to create knowledge and information for evidence based policy. Knowledge brokering processes are geared towards joint exploration of problems and research questions, sharing knowledge, and the design and monitoring of interventions intended to address problems.

Knowledge brokering processes are typically organised in the very early phase of a policy making or policy implementation process. Knowledge brokering processes can form part of a participatory process but differ from the later as they are not aimed at joint ownership of measures, policies or decisions.

The benefits of a knowledge brokering process

- Improves the quality of scientific and local information for water policy or river basin management;
- Leads to wider sharing of information which leads to a shared understanding of the situation;
- Addresses difficult dilemmas and uncertainties for policy and management and facilitates responses to these;
- Generates support for research findings and joint action.

Requirements for a knowledge brokering process

A knowledge brokering process that connects science and water policy will involve the relevant research and policy communities and can be relatively straightforward depending on the problem situation. Contrastingly, a knowledge brokering process that connects different types of knowledge to river basin management requires the involvement of scientists, policy makers and stakeholders from the area. This process will generally be rather more complicated and will require a higher budget than that needed for activities at the science – policy interface.



Following specification of the type of knowledge brokering process to be undertaken, a decision can be taken about the communities to involve as well as the available budget and time frame. The next step is to secure support for the process, not only internally but also externally. Conversations with key individuals in the policy making organisation should be initiated and – if the activity is focused on river basin management – with opinion leaders in the basin region. These conversations should include discussion of both the benefits of a knowledge brokering process and the potential pitfalls.

Considerations for organising a knowledge brokering process

- It takes time and resources;
- Results may not be immediately visible or obvious;
- Knowledge is a strategic asset for the organisation;
- Knowledge brokering requires a professional approach and execution, otherwise it may generate counter-productive outcomes.

Once you have secured support for a knowledge brokering process, you can then use this booklet to design the next steps of the process, and plan the use of the most suitable knowledge brokering instrument for your circumstances.

Important roles in a knowledge brokering process

The facilitative leader

The facilitative leader is a high level contact person in the policy organisation who helps pave the way for the knowledge brokering process. He/she has a good overview of the policy issues involved and a well-developed 'sense of urgency' for these and is well respected in the organisation having access to decision makers. The facilitative leader helps to identify and engage appropriate contacts in the organisation, arranges meetings and is the supporter for knowledge brokering in the policy counterpart. He or she should have decision making power, for instance, on how to organise the process and whom to involve.

The knowledge broker

If the connection between science and policy is important for an organisation, it is advised that a specific individual is appointed in the role of 'knowledge broker'. The knowledge broker is a professional with good communication skills and a broad professional background who can operate between scientific and problem domains and is proficient in the terminology and professional languages of those domains. This person would ideally have worked in both the policy and scientific communities. The knowledge broker mediates between science and policy, organises specification of the organisation's scientific information requirements, connects different policy domains and knows where to find the appropriate scientific information. He/she must overlook the process and have an eye for 'the whole'.

Knowledge brokers act as the "lubricant" for the knowledge brokering process. However, as their value is difficult to "measure" their position and budget are likely to be challenged regularly. When looking at the capabilities of the knowledge broker, he/she should be positioned at quite a strategic ("high") level in the organisation. In fact, knowledge brokering is an important strategic function for the organisation.

The facilitator

The facilitator is the independent person who designs and organises the knowledge brokering activities, facilitates meetings and keeps an eye on all process aspects. He or she should be a skilled facilitator in knowledge brokering processes, for instance, from consultancies specialised in mediation. It is highly important that this person is accepted and trusted by the involved participants and has no stake in the problem or interest in the cooperating organisations.

How to organise a knowledge brokering process?

The next steps give guidance to the knowledge broker on how to initiate, design and execute a knowledge brokering process. It is assumed that, at this stage:

- there is a current policy problem that would benefit from scientific and/or stakeholder knowledge;
- the organisations responsible for such a problem are clearly identified; and
- support has been found for a knowledge brokering process (see 'requirements for a knowledge brokering process' on page 4)

Initiation

Find the policy maker contact

Identify who is responsible for the policy problem and explore his/her interest in conducting a knowledge brokering process via an interview. If there is interest, make an appointment to conduct further interviews.

Explore the policy problem and select the stakeholders

Conduct interviews to explore who can act as the facilitative leader, diagnose the policy problem, understand the most urgent policy issues and identify the most influential actors. Plan the interview with the policy maker contact, for instance, preparing a list of topics for discussion and of interviewees, considering both internal and external stakeholders.

Topics for interviews:

- What is the policy problem (according to this person) and what are the possible solutions?
- What knowledge is needed to find solutions; what knowledge is available? (If it is a complicated problem, a separate study before proceeding to the next step may be required.)
- Who are the key-people who can help solve the problem? Did they already discuss the problem and how? Is there a shared vision? Do they find knowledge brokering potentially useful?
- Do the key stakeholders have time available (and how much?) to engage in a knowledge brokering process?

Investigate the laws and regulations that are applicable to the specific policy problem and which procedural steps have to be followed. Look for the opportunities to link the knowledge brokering process to these steps.

Start the knowledge brokering process

Start the process with the contact person when:

- knowledge is available **and**
- knowledge is not shared between the actors **or** actors have distinct problem perceptions or different visions on the problem **and**
- they are willing to spend time for knowledge brokering.

These questions should be answered from the interviews. If a positive decision is made, the design phase follows.

Design

Identify the facilitative leader

The facilitative leader will act as the contact person for the knowledge brokering process and will guarantee commitment and ownership from the organisation. He/she can be the person initially contacted or someone identified during the interviews.

Appoint the facilitator

Select the facilitator who should design the process in consultation with the facilitative leader and/or the stakeholders.

Allow for time

If the interviews show that the perception of the problem is divergent, and/or the involved communities are disconnected, the process should take more time (at least six months) allowing for a common sharing of problem perceptions, development of a common language and a “community feeling”. Such a process should contain several steps to develop the connection between the knowledge and policy. If a community has already been established, the process is less time consuming.



Define a plan

Make a clear plan that forms the 'process agreement' involving all participants as early as possible, ideally starting when problems and goals are identified. Record the 'rules of the game' including timing, steps, goal(s) of each step, results of the process and time and commitment required from participants. Before starting the process, participants should approve the plan with their signature.

Choose the Knowledge Brokering Instrument

Knowledge Brokering Instruments (KBIs) are tools to facilitate the knowledge brokering processes which level of effectiveness depends on the typology of the knowledge problem and the time that participants want to invest in the process. Four types of KBIs are presented on page 10: Group Model Building (GMB), Scenario Planning (SP), Role Playing Games (RPG) and Communities of Practice (CoP). In order to decide which KBI, or combination of KBIs, will be used, the interviews should provide answers to the problems identified in the table below.

Problem?	GMB	SP	RPG	CoP
Knowledge is not shared	X	X	X	X
Experience is not shared			X	X
Divergent perceptions of problem and solutions	X	X	X	
No common vision on the problem		X		X
System and its boundaries are not clear	X			
Obstacles in the system not clear	X	X	X	X
Uncertainty about the future situation		X		
Roles are not clear		X	X	X
Time consumption	Low to High*	High	Low	Medium

* GMB can be done in relatively short time (one or two sessions) but is more effective when more time is dedicated conducting a series of sessions.

Execution

Workshops are the suitable format to conduct KBIs as they provide face-to-face opportunities to exchange and discuss knowledge.

Keep the knowledge brokering process flexible and transparent

Although the process has been planned carefully in the design phase, it is advisable to keep it flexible so that it can be adjusted to unexpected changes, as for example conducting an extra workshop. The process should also be transparent, discussing with the participants every change in the process.

Create an open atmosphere

An open atmosphere is necessary for participants to feel comfortable to share their views and opinions, which in turn permits co-creating knowledge.

Promote lasting results

Make an action plan that clearly identifies the actions needed to connect knowledge and policy and the person responsible to lead those actions.

New knowledge and insights resulting from the knowledge brokering processes should be firmly embedded in the institutions and organisations. If new ways of organising knowledge are identified, a change in management perspective is required, which needs a 'sponsor of change' at a high level in the organisation with a mandate to make the necessary decisions to support the process.



Knowledge Brokering Instruments

Knowledge Brokering Instruments (KBIs) are tools to support knowledge brokering processes. KBIs facilitate discussion on problems and solutions and help to share and co-create knowledge amongst the different communities involved. Four types of KBIs are described below.

The added value of KBIs

KBIs have common features and are intended to improve the quality and value of science-policy interactions. However, each also has unique properties that vary with regards to the specific benefits that make each better suited to certain problem typologies and contexts.

Group Model Building

- Integrates a diversity of experiences through direct participation in model construction and validation;
- Expresses participants' underlying assumptions and mental models in the simple format of a "map" (or conceptual model) which contains all the complex key system elements, their interactions and processes;
- Allows participants to learn and develop mutual understanding about complex problems that emerge from different and potentially conflicting factors (e.g. environmental, economic and socio-cultural) operating at different scales;
- Challenges individual mental models to find new innovative solutions or make better strategic decisions;
- Enhances communication between actors engaged in the problem and can help planning interventions.

Scenario Planning

- Promotes knowledge exchange and helps developing a common language and a mutual deeper understanding of central issues;
- Provides a strategic tool to define measures to cope with certain and uncertain developments and events in the future;
- Identifies discontinuity as a central issue helping to prepare strategies to cope with possible changes – the instrument is particularly useful when the future is uncertain and the impacts of the changes are not well understood (e.g. climate change);
- Connects and commits stakeholders to the process.

Role Playing Games

- Stimulates participants to actively contribute with their expertise and brings diverse ideas to address problems or issues;
- Facilitates learning about the complex structure of the problem: different domains (social-cultural, economic and ecological), a range of actors (often with diverse goals and representing different organisations) and several types of solutions;
- Permits a better understanding of the roles and positions of the involved actors as players experience a role different to their real-life one and the consequences of their behaviour on others, which in turn aids the process of jointly seeking for solutions;
- May provide the foundation for conducting new policies.

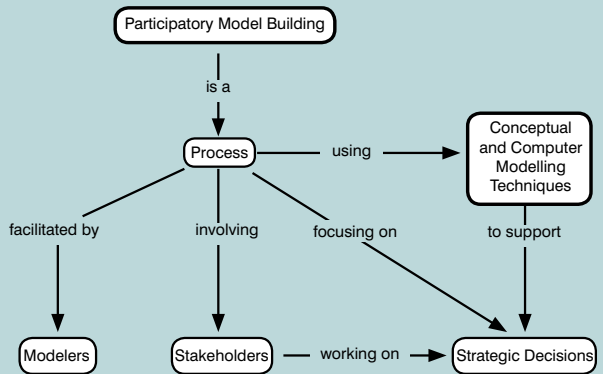
Communities of Practice

- Deals with complex situations that require continuous learning and the capacity to adapt;
- Enables practitioners to take collective responsibility for managing the knowledge relevant to the issue they are dealing with;
- Is not limited by formal structures and can help create connections between individuals representing different organisations.
- Provides greater access to expertise and experience (e.g. innovative approaches, problem solving and integration of solutions) which is beneficial for both the individuals participating as well as the organisations they represent;
- Does not lead to additional work as it supports members dealing with specific problems in relation to their own work within the same field of practice.

Group Model Building

What is it?

Group Model Building (GMB) uses the collaborative construction of mental or conceptual models to allow all relevant parties to explore a problem and alternative options for its solution. The history of policy failures arising from reliance on a single perspective has prompted the development of processes that can integrate multiple perspectives. Success has been defined by the achievement of consensus on cause - effect relationships for the problem, definitions of relevant terminology, and exploration of possible solutions for the problem. Another measure of success is the commitment to action shared by the group members.



Future

Policy Formulation

- Setting objectives
- Structured Debate Change (Designing Policies)
- Finding Indicators

Present and Past

Assessment

- Problem Articulation
- Mapping Assumptions (Conceptual Modelling)

Policy Implementation

Monitoring

How to implement it?

- 1. Problem articulation** Identify the human-environment system as the focus of analysis, define the problem(s), identify the variables critical to the problem, define horizons in time, geographical and institutional space and investigate the problem dynamics.
- 2. Mapping assumptions** Survey existing explanations for problem causes, build conceptual model(s) of perceived reality, identify major uncertainties and unknowns.
- 3. Designing policies** Build conceptual model(s) of ideal reality and compare the models of perceived reality with models of ideal reality; analyse plausible solutions and its consequences.

Scenario Planning

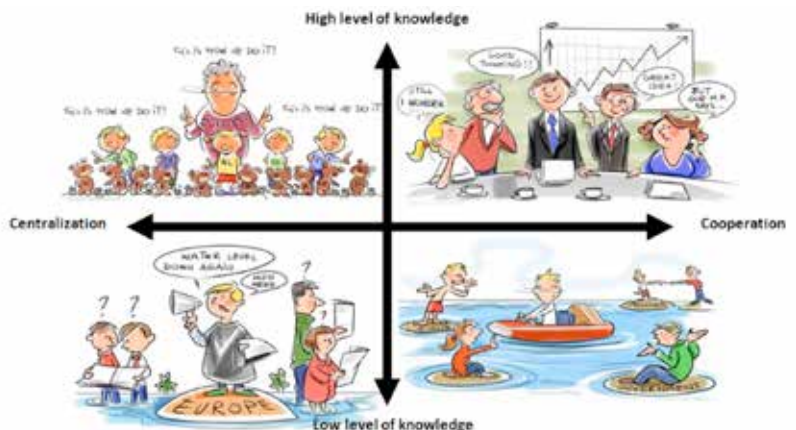
What is it?

Scenario Planning (SP) is used to understand the impact of those uncertain but important driving forces which will shape our world in the future. It is an instrument for strategic decision making that allows for development of relevant responses or policies. Scenarios are joint stories of the future that are developed in a group process starting from uncertain and heavily influencing driving forces. The stories, together with the experience of developing them, have the dual value of increasing knowledge and widening the participant's awareness and understanding of possible future events. Good scenarios explore possible futures that provide relevant challenges to the users helping them to prepare for the major changes ahead developing robust measures. The scenarios will provide a useful context for dialogue, leading to better policy, strategy and commitment to joint actions.



How to implement it?

1. **Formulate the key question** which defines the field of focus and the appropriate time horizon.
2. **Inventory, cluster and prioritise certainties and uncertainties** Organise a workshop to facilitate interaction between participants in identifying certainties and uncertainties in relation to the key question. A long inventory of uncertainties is expected that is then clustered and prioritised based on expected impact.
3. **Compose a scenario matrix** By formulating the extreme outcome of two prioritised clusters, a frame is developed for contrasting views.
4. **Write scenario stories**, ideally, in close cooperation with a group of stakeholders (e.g. workshops). Name the scenarios to simplify communication.



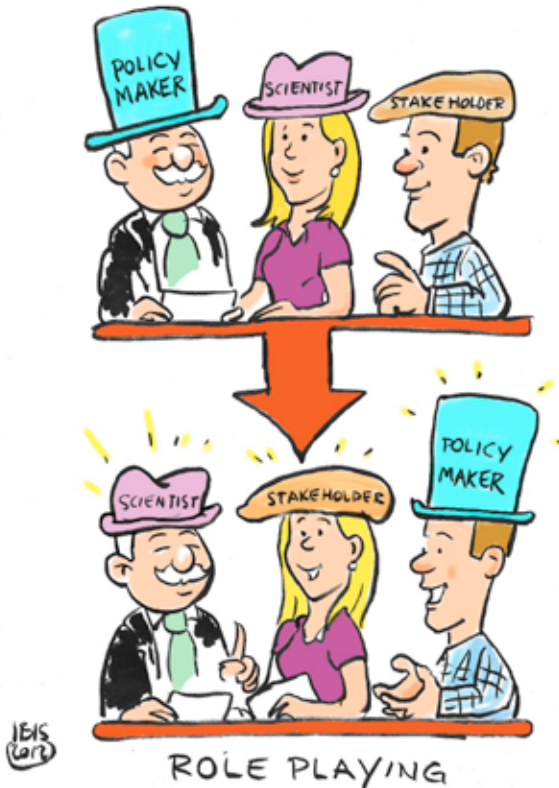
(from PSI-connect current regional Dutch case study)

5. **Answer the key question** bearing in mind that responses can be robust (i.e. suitable under all scenarios) or only applicable under specific scenarios. Attention should be paid to adaptable and low-regret measures.
6. **Translate to short term actions** Overview possible and adequate short term actions and the stakeholders involved. Actions may include knowledge questions aimed at gathering new information; the scenario planning exercise allows a more structured approach to answering the knowledge questions.

Role Playing Game

What is it?

Simulations offer ways of enhancing learning through active participation in a situation less complicated than the real world, but with enough of its characteristics to provide a rich experience. Role Playing Games (RPG) model complex processes and relations between actors and offer a safe learning context that encourages experimentation. The goal for all participants is to take a particular role, address the issues, threats, or problems that arise in the situation and experience the effects of their actions and decisions. Participation typically involves both working through a simulation and debriefing participants after the experience to expose underlying dynamics and motivations.



How to implement it?

Introduction includes a comprehensive explanation of the purpose, the rules and components of the game as well as a description of the various roles. The background information that sets the scene for the game should be clear to all participants.

Simulation The facilitator is responsible for controlling the mechanism by which the roles in the game interact with each other and with the game environment (e.g. visuals, equipment). There are a variety of facilitator generated tasks (e.g. forms, voting) as well as player generated tasks (e.g. negotiation, developing and implementing strategies), by which the participants are stimulated to analyse situations, find solutions and make decisions. A variety of tools to support the process may be used such as manuals, maps, game board and computer models. Some games are structured by rounds allowing for the sort of timely feedback that is critical for effective learning in complex systems.

Final debriefing is a systematic end-of-game discussion to evaluate the exercise which may analyse the system and the interactions between the actors during the game (e.g. communication between the players, the interactions with the simulated environment and/or the decisions and their effects).



Communities of Practice

What is it?

A Community of Practice (CoP) is a network of people with a shared interest in a problem or situation and coming from diverse backgrounds. Based on regular face-to-face and virtual interactions CoP members exchange ideas and knowledge and develop collaborative relationships that form the basis for collective learning and, consequently, better understanding of how to address the issue(s) they are dealing with in their shared field of practice. A CoP is open to new members and also guests who may contribute their expertise and experience upon invitation.

How to implement it?

A CoP can be an unintended outcome of interaction or a planned knowledge management strategy. The community created to address a strategic issue opens the floor for the exchange of explicit and tacit knowledge. The jointly identified issues can be addressed effectively and enable the individual members to put the results into practice. With increasing maturity, the communities may become integrated into their host institutions and consequently become more formalised. After the CoP has served its purpose, the rate and intensity of activities slows down in preparation for closure. 'What is next' could be institutionalisation as a formal organization or segmenting the community into sub-areas as issues become more differentiated.



Dos and don'ts

The PSI-connect project brought together scientists, river basin managers and policy-makers in seven case studies to experiment with knowledge brokering activities in 'real life situations' at three levels of governance: European, national, and regional. This section provides guidance for the different phases (page 6) of knowledge brokering processes illustrated with examples drawn from the conducted case studies.

Dos and don'ts: initiation

The initiation was found to be the most critical and challenging phase of a knowledge brokering process. What are the factors of success and failure for initiating the process? How can we influence the factors?

Timeliness	
Challenge:	Experience:
Identify windows of opportunity in on-going policy making activities and offer to contribute with KBIs supporting the processes in a timely manner.	PSI-connect discontinued cases where there was no problem owning group to connect to and no suitable issue that could be jointly tackled.
	Focus on connecting to the policy challenges as an on-going process rather than as a stand-alone activity.

Problem framing	
Challenge:	Experience:
Engage stakeholders staying close to their expressed needs and framings and finding common ground between them. Stakeholders are more eager to learn about the insights of an exercise that supports their own processes.	If a group has a work plan with specific tasks to be accomplished, carefully explore room for 'experimentation' and the feasibility of the proposed exercise.
Clearly identify and communicate transparently the objectives of both the participants and the KBI delivery team.	In order to understand the methods and the process, participants can be given written materials such as workshop instructions.
Invest significant effort and time framing the exercise to the policy context.	Obtain insight and understanding into the context of the case study: responsibilities, balance of power, organisational structures, cultural aspects, working routines and relationships between policy and authority levels.

Time constraints	
Challenge:	Experience:
Ask stakeholders to invest a considerable amount of time in the process, which they may not have.	PSI-connect failed to start some case studies due to lack of time by stakeholders.
	Clarify from the early stages of the process the time stakeholders need to invest. Prioritise the most relevant actions.
	Discuss the influence of the actions in the final decisions as this could provide reasons to give priority to the process.

Stakeholder participation	
Challenge:	Experience:
Understand how to involve the representative stakeholders.	Understand stakeholder's perspectives.
	Appreciate stakeholder's knowledge and input.
	Do not involve external stakeholders at this early stage in the process if this is perceived as a threatening suggestion for an organisation that is used to prepare and control processes and decisions thoroughly.
Confirm the willingness of participation of all representative stakeholders.	A PSI-connect case study was abandoned when participation from higher hierarchical levels not initially committed was requested.

Human dimension	
Challenge:	Experience:
Credibility on the KBI delivery team and the methods shape the potential for engagement of the case study partners.	Trust is important and the greatest value was found in existing contacts. Contacts established by senior members were found to be advantageous.
Work with contacts that are motivated and open to try something new.	Ask if they are they interested in knowledge brokering processes and committed to collaborate.
Consider the personality and seniority/authority of the team involved by the main contact.	A committed organisation with high authority asked core members to participate and this prompted them to take an active role and provided the justification for involvement needed by their employers.
	The knowledge brokering process was hampered when the contact person involved higher levels of the organisation which were not initially committed.
Be prepared for changes in contacts that are often required. This may lead to lack of ownership for cooperation and is time consuming.	Be prepared to (i) find a new and committed contact and (ii) build up a relationship and agree (again) on preliminary study activities

Dos and don'ts: design

It is crucial to adapt the format of the workshop to the case study in question, however, KBI workshops were generally observed to be more effective and efficient when:

- a series of workshops is conducted because:
 - it helps build a “community”;
 - the problem can be discussed in several steps;
 - the workshops complement and accompany the policy trajectory.
- KBIs are combined taking advantage of the strengths of each instrument.

How can we successfully tailor the chosen KBI(s) to the case study?

Select the relevant stakeholders for the workshop	
Challenge:	Experience:
Carefully consider the number of participants and bring together a well-balanced and representative group of stakeholders.	Stakeholder selection can be carried out by the case study partners, by the KBI team or by both.
	Select participants after research and preparatory interviews. Selection criterion may include having a mix of organisations, political views, backgrounds, gender and age.
	Include a wide range of stakeholder perspectives in representing the relevant aspects and views on the topic in question.
	Phase external stakeholder involvement if appropriate to relax barriers and provide a comfortable environment. Create an understanding of the importance of involving external stakeholders.

Be prepared	
Challenge:	Experience:
Learn about the subject and the case study context.	Interview key participants and research the literature (policy papers and notes; media coverage, etc.)
Equip participants with all the information they need prior to/during the workshop.	This depends on the KBI type. For instance, prepare the role descriptions for a Role Playing Game, a simple conceptual model for a Group Model Building session or the specific steps for a Scenario Planning exercise.

Design to meet expectations	
Challenge:	Experience:
Involve stakeholders in the design process whenever possible.	Discuss the “rules of the engagement” with participants.
Optimise the time available from stakeholders.	Design a flexible knowledge brokering plan that allows for changes and can easily be adapted. To better manage expectations, assess how much time will be required from the participants.
Explore the boundary conditions within which the KBIs should be tailored and a facilitation plan prepared.	Explore group settings such as polarisation, ways of working and familiarity with the KBI. For example, if tension is expected, prepare a plan that allows participants to reflect on divergences in a constructive manner.
	Explore the desired outputs from the exercise, for instance focused / broad topics and need for immediate / longer term results.
Keep the method flexible and adaptable to the needs expressed by the participants.	Re-define steps over time to fit to participant's agendas.
Give feedback to the participants ensuring the planned exercise suits their needs and requirements and encourage them to get continuously involved.	Organise strategy meetings to continuously inform and update the participants about the progress of the process.

Dos and don'ts: execution

Provide a space that invites exchange of knowledge and discussion of the problem. A successful workshop with activities and exercises that are easy to follow by the participants can be achieved through the support of an adequate facilitating team.

The facilitator should:

Promote	Avoid
A constructive, productive and open atmosphere	Accusations, hostility and creation of resistance
Participants to engage in the discussions	Dominant or silent behaviour of participants
Support participants that are not familiar with the KBIs	Scepticism towards the KBIs
Flexibility for adjustments in the process to accommodate for necessary discussions, steps, or facts.	Rigidity with the policy organisation for adjustments (keep the focus on the results that they need)

Outcomes of a knowledge brokering process

Cooperation on “fragmented” problems

Knowledge brokering processes lead to better cooperation between policy makers, researchers and stakeholders. The process by which collaboration happens does not follow standard institutionalised paths allowing for a diversity of stakeholders to be involved. Planning and decision making is usually a sector specific, top-down activity which typically involves stakeholders only at a later stage in the process. KBIs bring together policy makers and/or stakeholders from highly fragmented policy processes at a very early phase of decision making (problem exploration). Participants from different backgrounds that do not usually work together will be able to share different types of knowledge and insights. Moreover, participants also get to know each other and may maintain such contact in the future.

Sharing and co-creating knowledge

PSI-connect case studies have been very successful at:

- Sharing knowledge;
- Integrating different types of knowledge;
- Generating and co-producing knowledge.

Two examples are provided. The evaluation of the Role Playing Game has shown that playing a different role forces discussion and negotiation from different perspectives. Effective learning experiences were reported by participants that played someone else's role during the game. Some participants combined their existing knowledge with newly acquired insights about other roles in order to suggest next steps or even to create new solutions for a problem. In another case study, Group Model Building was used in a setting in which initially one cause of the problem was of concern. During the workshop a wide range of causes was explored, false assumptions were clarified and discussions brought common understanding.



Obstacles to improved policy making

Although the KBI workshops provided useful outputs, several obstacles were experienced that prevented a tangible and short term measurable policy-making improvement. Some examples from KBI workshops are presented below.

Obstacle	Example	Solution to overcome the barrier
Output orientation	GMB is a less focused tool which aims at broadening the boundaries of knowledge. This was perceived as a disadvantage by participants: 'the process was too time consuming and vague'; 'the output of the workshop was rather meagre in relation to the time dedicated'.	Output orientation during the process (not only at the beginning) is an important factor when planning the activities. Alternatively, GMB can be combined with other KBIs for a more specific final outcome.
Translating the exercise into concrete actions	Participants experienced difficulties translating the results of a SP workshop into an action plan. Abstract discussions about scenarios a few decades into the future were not found helpful for current decision making.	Organise extra workshops to support the stakeholders developing an action plan for a decision making process on the political level of the organisation.
Resistance to change	It was difficult to change common routines to work towards a participatory process just by playing a game and experiencing new ways of working.	Connect all stages of the policy process; it is recommended to use knowledge and experiences from all stages of the policy process and to involve different stakeholders/ levels of the organisation during the policy-making process.
Using generated results	It is difficult to achieve tangible long term results. To what extent are the outcomes of the workshop going to be considered for the policy making process?	Involve the responsible decision maker to approve the suggested working routines/ decision making processes. Clarify perceived constraints for the applicability of the proposed plan (e.g. governing will, funds available).

Continuous learning for improved science-policy connections

Creating structures and mechanisms that promote learning



Continued exchange over time is necessary. For continuity to be achieved, facilitative structures and skilled knowledge brokers are needed. Knowledge brokers, with a broad background to understand the different 'worlds' of scientists, policy makers and other stakeholders, have to be an appreciated and legitimate part of the organisational structures. Contemporary practices and structures do not acknowledge the importance of knowledge brokers and should change to promote their training. In the context of the Water Framework Directive, knowledge brokers could serve as valuable intermediaries connecting the different levels of governance.

Developing a common language

In order to communicate effectively between policy and science it is necessary to find a common language. A diverse group of people are involved in implementing the Water Framework Directive. This draws attention to the role of skilled knowledge brokers who can help overcome boundaries and understand different 'languages'. Moreover, the development of a common language may also be supported by using KBLs to look at the challenges associated with the Water Framework Directive implementation.

Matching policy and research needs

Science and policy underlie different dynamics. The timeliness for connecting is crucial and identifying windows of opportunity is harder when dynamics diverge greatly. This means that a better match between policy and research needs is necessary (e.g. clear formulation of research needs and changed reward systems for researchers).

About PSI-connect

'Policy Science Interactions: connecting science and policy' is a collaborative R&D project funded by the European Commission under the FP7 programme. Project members developed, tested and disseminated knowledge brokering practices, offering opportunities to improve the quality and value of interactions in the field of water management.

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Further details about the PSI-connect project and downloadable materials are available at:

www.psiconnect.eu

