



# **Science-Policy Training Workshop Manual**

January 2020

# Part I: SPIs

## What are SPIs?

*« For effective application of scientific results to policy planning, there should be a **communication mechanism** to translate findings into formats that policy makers can easily understand. »*  
(Asia-Pacific Network for Global Change Research, 2015).

**Science-policy interfaces** (SPIs) help to bridge the gap between science and policy; they are a sort of two-way communication mechanism, allowing for exchanges between scientists and other actors in the policy process, enriching the decision-making process along the way.

SPIs have been defined as “social processes which encompass relations between scientists and other actors in the **policy process**, and which allow for exchanges, co-evolution, and joint construction of knowledge with the aim of **enriching decision-making**” (van den Hove, 2007, p. 807).

SPIs involve an **exchange of information** and knowledge. This exchange **leads to learning**, and ultimately **influences decisions** and **changes behaviour** – i.e., doing something differently as a result of the learning (Young, Watt, van den Hove, & the SPIRAL project team, 2013a; Young et al., 2014).

As social learning is a major component of SPIs, it makes sense that society is included in the SPI. As such, SPIs are increasingly seen as including three main areas: science, policy and society.

Science can help identify problems and needs that come from policy and society; this then gets incorporated into research, which is then transformed into knowledge. Knowledge can also come from policy and society, so SPIs are at the interface between science and policy and science and society. If we follow the information flow shown below, knowledge is transferred, adopted and diffused to policy actors and society and this process influence decision making and leads to potential behaviour change.

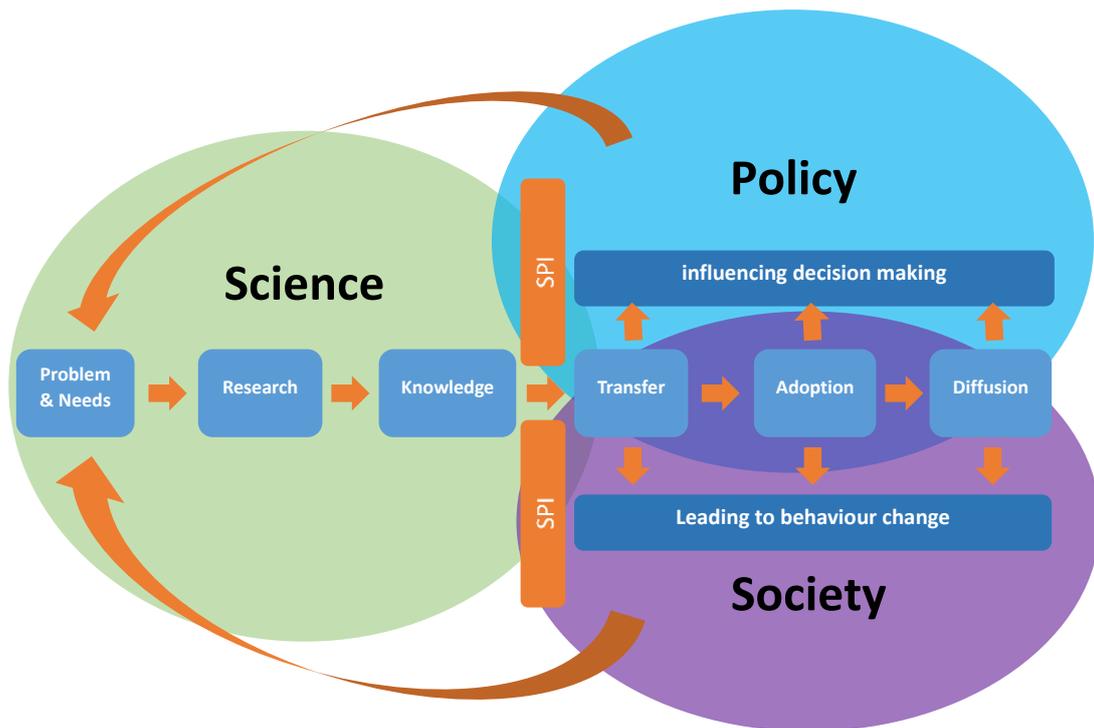


Figure 1 Science-Policy-Society interactions (adapted from: Génereux, Lafontaine, & Eykelbosh, 2019).

SPIs involve complex interactions and learning processes. Often luck plays a role in why, when and how interactions happen, work, and result in learning. Time, repetition and multiple communication channels and methods can all help – there is no single magic bullet and no one-size-fits-all solution for ideal SPI communication (Young, Watt, van den Hove, & the SPIRAL project team, 2013b; Watt et al., 2019).

### What stakeholders can be involved?

A range of actors can be involved in SPIs. This includes not just scientists and politicians, but research institutions, research funders (i.e. European Commission), businesses and business organisations, decision makers (from the local level all the way up to the international level), civil society organisations, and the media (Young et al., 2013b).



Figure 2 Stakeholders involved in SPI (adapted from Young et al., 2013b).

### Basic facts about SPIs

- SPIs cover a very wide range of communication forums, situations and methods
- SPIs can be formal or informal structures

- SPIs are driven by policy demand or by supply of science
- SPIs can be long-term processes or one-off events
- Their common feature is the potential for exchange of information, joint knowledge development and learning

Formal structures	Informal structures
<ul style="list-style-type: none"> <li>• The Intergovernmental Panel on Climate Change (IPCC)</li> <li>• Official policy implementation reviews</li> <li>• Townhall meetings</li> <li>• Consultations at the European Commission</li> <li>• The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing a project with funders</li> <li>• Co-deciding how to carry out research</li> <li>• Randomly emailing research summaries to government departments</li> <li>• One-to-one conversations between a decision-maker and a scientist</li> <li>• Lobbying</li> <li>• Field trips</li> <li>• Workshops with policymakers, scientists and potentially other stakeholders</li> <li>• Conference presentations of scientific results</li> </ul>

### SPI contexts and attributes

Looking deeper at SPIs, they can be characterized by four main dimensions and three attributes.

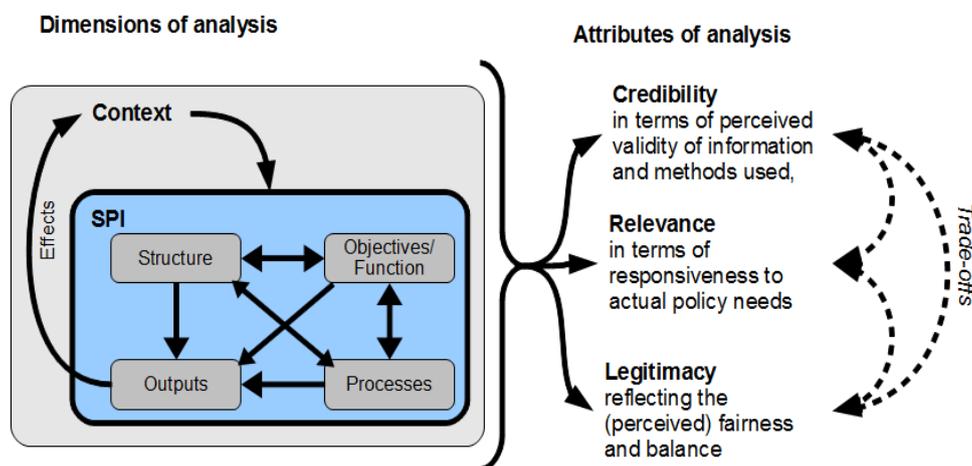


Figure 3 Dimensions and attributes of SPIs (Young et al., 2013b).

**Dimensions** (see Sarkki et al., 2015 for more details on the dimensions of SPIs)

- 1) The structural features of SPIs describe how they are set up and the constraints within which the processes are defined.
- 2) The goals/objectives are central to understanding how and why it operates, and why people participate.

- 3) The processes of SPIs define the way in which the key functions are actually carried out.
- 4) The outputs and impacts of SPIs can be characterized by a set of features describing how and when they are prepared and presented and the ultimate outcomes associated with SPIs and the learning, behavioural and policy changes they foster (see Tinch et al., 2018).

### **Attributes**

- 1) **Credibility:** the perceived quality, validity and scientific adequacy of the people, processes and knowledge exchanged at the interface. To be credible, SPIs must have access to excellent people, skills, and the latest knowledge. But that alone is not enough: the way the SPI is seen by others is vital. Senior and respected participants can enhance the credibility of the SPI.

Key human resources, including ‘champions’ in strategic organisations, leaders, science translators, and charismatic “ambassadors” can improve visibility and credibility. Some continuity in membership of SPIs is useful to ensure that knowledge and skills about running the SPI are built upon and not lost, to maintain relationships, and to build trust. Independence from external control and from vested interests enhances credibility. SPIs should be both cautious and transparent regarding links to other organisations and interests, in particular where significant funding is involved.

Formal and publicised procedures for peer review and quality control increase credibility and reduce the risks of costly mistakes. Similarly, attention to accounting for and communicating uncertainty increases credibility. Transparency and traceability regarding the origins of knowledge and outputs, with a full and open audit trail, enhance credibility and may save the SPI’s reputation (and that of its participants) if things go wrong and scapegoats are sought.

- 2) **Relevance:** the perception of the usefulness of the knowledge brokered in the SPI, how closely it relates to the needs of policy and society, and how responsive the SPI processes are to these changing needs. Relevance is crucial for having a real impact. It is also key to motivating participation, not just on the policy side but also among scientists.

Nobody wants to waste time. Continuous and iterative policy support builds trust with policy makers and enhances capacities for communication on all sides. Seeking a policy mandate can further enhance relevance. It buys a direct line to policy but, on the other hand, it may also limit flexibility to explore wider issues and can diminish independence and legitimacy.

Similarly, lobbying may increase relevance, but risks harming credibility. Using understandable language adapted to the specific audiences is crucial to relevance. Avoiding jargon, explaining concepts, and establishing common assumptions all help to build understanding and maximise the chance of outputs reaching and influencing the intended audiences.

Skilled “translators” can help to improve knowledge exchange. High-impact communication, for example using pictures, figures, or strong messages such as tipping points or irreversibility, can help get complex points across. On the other hand, if uncertainties are glossed over this may threaten credibility in the long term. Presenting outputs at relevant events, by appropriate presenters for the audience, and at the right time in terms of policy cycle, in accessible format increases relevance.

- 3) **Legitimacy:** the perceived fairness and balance of the SPI processes. Legitimacy is especially important when knowledge is contested, when policy decisions involve winners and losers, and in all other situations where conflict may arise.

Wide coverage of expertise and perspectives not only increases the knowledge base and credibility of the SPI, it also helps legitimacy, provided time is taken to explore issues from a variety of perspectives. It may be necessary to have balanced membership for example through 'seats' or votes for relevant interests, sectors, or geographical areas. Successful conflict management can enhance legitimacy.

Clearly stated, appropriate and agreed methods are needed to manage conflict and dissent. Recourse to an external or neutral ombudsman may be necessary. Yet it is important to recognise that consensus should not always be the target. Usually, reaching compromise is a more realistic and even fairer objective. Multi-stakeholder dialogue is often needed for building relationships, trust, and legitimacy. Formal consultation processes may be required, but it is also often helpful to encourage informal dialogue as people may be more comfortable with this. Incorporating extended peer review, including scientists from a broad range of disciplines and also other stakeholders in quality control procedures, can build trust and enhance both legitimacy and relevance.

It is important to note that there might be trade-offs between the attributes of SPIs – see Sarkki et al., 2014 for more details on these trade-offs and how to address them.

### **Key challenges of current SPIs**

- 1) Individuals often play a pivotal role in making SPIs work, committing their time and energy but also potentially influencing it. When or if these individuals leave, there is a risk that effort/interest in the SPI may dwindle.
- 2) Many actors or institutions in science and policy continue to tend to operate within a sector-based silo mentality.

# Part II: The EU Policy Process

## How policies are established

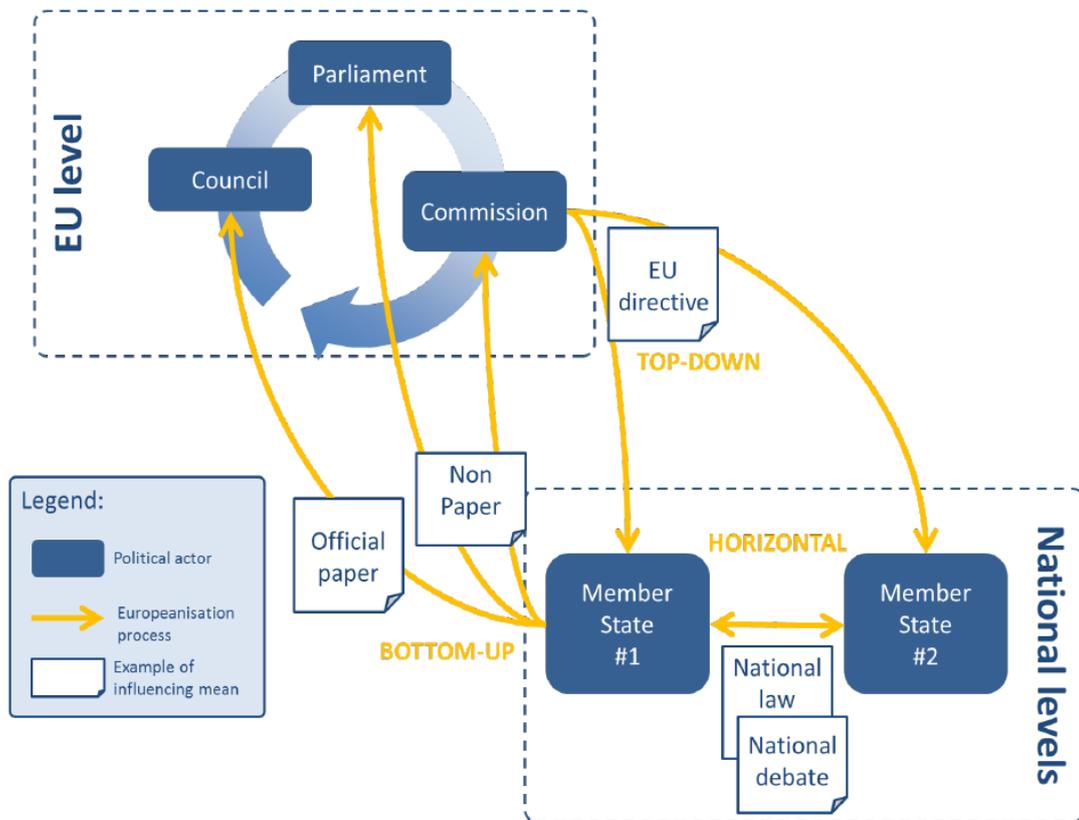


Figure 4 EU policymaking and the Europeanisation process (Aze et al., 2016).

Public policies are shaped both at the EU level and on the national level. There are three political actors shaping policy at the EU level: the Commission, the Council and the Parliament. Through EU directives (a top-down process), they influence national-level policies. National-level policies can also influence EU policy, in a bottom-up manner, such as through official papers and non-papers. Member states also influence each other horizontally, through national laws and debates (Aze et al., 2016).

### The policy cycle

The policy cycle has two notable limitations. The first is that it is an over-simplification of the actual policy process, which is never as clear-cut as the model depicts. The second is that it does not show the web of interactions that co-exist between institutions, people, and other policies, all of which help to determine a policy's success or failure.

The policy cycle is a limited concept, based on abstract representations driven by academic debate. Unlike the clearly-defined process highlighted by the model, the process is complex in reality. "Stages are often skipped or compressed and the idiosyncrasies, interests, pre-set dispositions, policy paradigms or mental maps of the actors involved often usurp the sense of a smooth process" (Subroto, 2011, p.3). For instance, policy processes typically do not have a clear-cut beginning and end (Jann & Wegrich, 2007). When they do, they are typically determined by events rather than the government being in control of its agenda (Hallsworth & Parker, 2011). Furthermore, many officials

strive to make things happen in sync with their election timelines, office deadlines and annual budget constraints, all the while appeasing special interest groups (Barkenbus, 1998).

Not only does the policy process not happen step-by-step, but policies are often the output of several related choices, rather than one single decision made by one institution or person (Bridgman & Davis, 2003). In fact, there is a multitude of actors taking part in the process, each with their own interests and perspectives (Subroto, 2011). Due to the constant interaction between the various levels of policy makers, it is difficult to understand the policy process without first understanding the evolution of relationships that exist between the policy makers and their respective programmes (Jann & Wegrich, 2007).

### **Agenda setting**

The initial stage of the policy cycle is essentially recognising that a problem exists (Subroto, 2011). In essence, this initial stage of policy development represents a shift whereby individualised issues are elevated into the public domain.

Agenda setting can take place in many forms, and who sets the agenda can have a potentially drastic impact on the issues that get defined. Sometimes it is the politicians who set the agenda, stating the problems they want to change, while other times it is civil society who sets the agenda, perhaps via panel discussions or petitioning their government. Still other times, issues may be identified by the private sector, pushing for a change that will enable business to improve. The media is also a major agenda setter, giving attention to the issues it covers.

### **Policy formulation**

This second stage of the policy cycle is where policy objectives are defined. Decision makers should consider all options that are on the table before ruling out any of them. After careful consideration, decision makers emerge from this stage with government programs to address the problems identified in the previous stage (Jann & Wegrich, 2007). It is vital that actors involved in this stage imagine the impact of policies on all potential stakeholders. As stakeholder support will be critical for success, seeking out stakeholders' opinions will prove advantageous.

The processes involved in policy formulation are varied. Contemporary practices include the development of cost-benefit assessments, public policy analysis, public hearings and judicial evaluations. Policy formulation may be done by decision makers, the public, or the private sector. A critique of having the public formulate policy, however, is that they are not experts in the subject matter, and may not be capable of designing policy that fits everyone's needs. Likewise, if the private sector is involved, one may rightfully question the agenda of the business(es) involved, and if it is in the interest of the wider community. Having multiple stakeholders participate in the process therefore helps to ensure the representation of different social groups.

### **Policy implementation**

The policy implementation stage deals with putting into practice the policy that was conceived. Traditionally, policy implementation procedures have received less focus than policy formulation processes (Barkenbus, 1998). However, the policy implementation stage is a particularly difficult

stage, with some scholars noting that successful development of programmes is a challenging process and usually leads to policy development shortfalls (Barkenbus, 1998). That is because several factors, such as mismatch with existing bureaucracies, inadequate funding and weak levels of political support, amongst other factors, can derail the implementation process.

Even when such implementation factors are not a concern, a policy may still fail. As such, some governments prefer to conduct a pilot or trial of the policy in a few select areas, before deciding if the policy should get implemented on a large scale. This can be a safer method politically, and it also allows policy makers to go back to the policy formulation phase and tweak some aspects of the policy, if needed. However, it also takes more time, something government representatives may not have.

### **Policy evaluation**

The final stage of the policy cycle is policy evaluation. Monitoring a policy's performance is critical to its success, although several factors work against this step. For instance, evaluation exercises may not have been written into the policy itself, or may have been poorly executed (Hallsworth & Parker, 2011). Furthermore, evaluations showing poor or embarrassing results tend to be downplayed either by the politician championing a particular cause or the responsible bureau leading the implementation; the human tendency to be risk averse and to stick with the status quo only adds to this inclination of side-lining even carefully-conducted and beneficial evaluations (Barkenbus, 1998). As with the other stages, who controls the policy evaluation phase is important, as this will determine whether a policy gets continued, revised, or terminated.

### **Feedback**

Although not an actual stage in many policy cycles, feedback, or iterativity, plays a crucial role throughout the process (Sarkki et al., 2015). Like the evaluation stage, feedback has the power to terminate a policy, or to restart the policy cycle from the beginning (Jann & Wegrich, 2007). It also has the power to improve policies. Successful communication and dissemination of policy evaluation findings is critical to organisational learning (Hallsworth & Parker, 2011). While the logical step for feedback comes after the evaluation phase, it is valuable at any point in time throughout the policy cycle.

Feedback may come from field experts early in the process and from citizens after the policy has been implemented, or vice versa. There may be more ideal times for feedback, although this is very circumstantial and depends upon the actors involved and the type of policy at hand. Furthermore, who provides the feedback to whom may also impact the process, such as if an elected official tends to ignore advice from civil society, and instead gives more weight to advice coming from the business community.

Video: An example of the policy cycle in practice, by the Khan Academy:

<https://www.khanacademy.org/humanities/us-government-and-civics/us-gov-foundations/us-gov-federalism-in-action/v/introduction-to-the-public-policy-process>

## **Policy window of opportunity**

Policies move forward when the three streams align:

- 1) A problem is defined.
- 2) Potential policies are developed to solve the identified problem.
- 3) Politics & public opinion are both in favour (Kingdon, 2010).

This then opens a "window of opportunity" and the three streams push the policy change through. As policymakers are receiving various messages from multiple stakeholders, reaching them with strong, scientific evidence is important, if you want to get your message heard among all the noise.

## **Key tools to apply throughout the policy cycle**

- 1) Evidence (results)
- 2) Dissemination / Communication
  - a. Scenarios

The type of evidence used will affect the dissemination methods that should be used, which may or may not lead to the use of scenarios. Also note that the tools used will be different according to the stage of the policy cycle at which they're being used. For example, evidence at the agenda setting stage will not be the same as the evidence used at the policy implementation stage.

## **Evidence**

- How evidence gets used can increase the legitimacy and effectiveness of policy engagement efforts.
- Having evidence readily available in the appropriate format, and presenting it in the correct way at critical stages along the policy cycle is important.
- Different types of evidence are often needed for different parts of the policy process. For example:
  - Agenda setting: during agenda setting, you want to get your (biodiversity) issues on the agenda, so that they are considered during the development of the policy.
  - Policy implementation: would be more to show whether the policy works, is having the desired effect and the institutional arrangement is suitable. The evidence has to be in the right form for policy makers to understand (here the use of scenarios might come in handy) and in the case of European policy, the indicators used for monitoring need to be compatible (which unfortunately is not always the case).
- Time considerations are likely to influence the mechanisms available to mobilize evidence.
- Decisionmakers must have fast access to critical information from sources they trust.
- A key factor is the credibility of evidence, but also the way in which evidence is communicated.

## 9 tips for producing powerful evidence

When current knowledge gaps and emerging issues need to reach policy agendas and training toolkits, it is first and foremost important to consider the evidence (results) at hand, in particular its:

- **Accuracy:** is the evidence correctly describing what it purports to do?
- **Objectivity:** The quality of the approach taken to generate evidence and the objectiveness of the source, as well as the extent of contestation regarding evidence
- **Credibility:** the reliability of the evidence and therefore whether it is reliable for monitoring, evaluation or impact assessments
- **Generalizability:** is there extensive information or are there just selective cases or pilots?
- **Relevance:** is the evidence timely, topical and has policy implications?
- **Availability:** the existence of (good) evidence
- **Rootedness:** is evidence grounded in reality?
- **Practicalities:** whether policymakers have access to the evidence in a useful form and whether the policy implications of the research are feasible and affordable
- **Timing:** Evidence needs to be presented at the right time. That is especially the case for biodiversity, where there's a risk that by the time we have the information, it is too late. If the species is gone, and we learn it could have been used to cure cancer, then we're out of luck.

Ensuring these nine tips before presenting the evidence helps to improve the legitimacy and credibility with policymakers (RBINS, 2019).

Video: Hear from some policymakers on key attributes that are important for evidence to have an impact: <https://www.euractiv.com/section/politics/video/quo-vadis-eu-evidence-based-policy-making-addressing-the-evidence-policy-gap/>

## Dissemination: Reaching stakeholders

- Communication and communicators are vital. They must keep in regular contact with stakeholders and work across multiple platforms and offices to publish context-specific information.
- Knowing how to reach the targeted audience is crucial. Ineffective dissemination results in a "translation gap".

For non-academic audiences, framing messages to evoke emotion and demonstrate usefulness.

Dissemination approaches should be time-efficient, aligned with the targeted organization's climate, culture, resources, and skills of its staff members.

- Stakeholder engagement in research and evaluation processes will enhance dissemination, particularly for emerging issues. That's because passive approaches to dissemination are largely ineffective (uptake does not happen spontaneously.)

- Communicators need to build awareness of existing or emerging threats or benefits, as decisionmakers may not be aware of the risks or the responsive behaviours/policies to take. Communicators must inform people about the current state of knowledge in order to maintain confidence in the informant as a key source of credible information. If communication is delayed, stakeholders may conclude that the informant does not know what is occurring or is hiding information. They will turn to other sources for information.

### **Dissemination: Reaching policymakers**

- The gap between the discovery of knowledge and its application in policy development is due in part to ineffective dissemination. It is therefore helpful to design studies in a way that emphasizes dissemination early in the research process through involvement of stakeholders, leading to an active process that helps ensure that interventions, often evaluated by researchers, are developed in ways that match well with adopters' needs, assets, and time frames
- Keep in mind that policymakers have unique time horizons and needs for data.
- Policymakers have little time to read material – they rely on party priorities and "real world" stories from their constituents. It is helpful to provide them with:

Locally-relevant information that is understandable, concise, and unbiased.

Recommended actions or options, as well as cost-effectiveness or economic impact if available. A cost-benefit analysis that takes into account scientific, psychological, emotional, moral and political frameworks is useful. The benefits should outweigh the risks.

- Policymakers rely on staff to help them discern priority information. Staffers of policy makers are therefore a key target audience for dissemination efforts.

### **Dissemination: Methods**

- Think: dissemination to the wider public is key. Also remember: dissemination is not a linear process but one with multiple inputs and feedback loops.
- There is no need to reinvent the wheel. Make use of existing science-policy dissemination channels and send articles to Science for Environment Policy (the news and information service set up by DG ENV, and other similar SPI channels.)
- Other possible actions include:
  - European media (e.g. Euronews)
  - Production of popular or children's books
  - Social media (e.g., YouTube, Twitter)
  - Online tools such as Eye on Earth
  - Partnerships for dissemination, including NGOs, professional communicators, Science Museums, Aquaria, Planetaria, etc.

## **Reports vs Briefs: what are the pros and cons?**

Reports offer valuable details, and can provide both the quantity and quality of evidence needed to influence decision makers. They have the space to communicate the breadth of information, the degree of uncertainty and gaps in knowledge. However, reports are can be seen as less accessible than other mean of communication. Fewer people will perhaps read a full or very long report. Particularly to communicate new ideas and concepts, text reports should **not** be the ‘front line’ of communication – but are often essential as grounding for communication. As a hook to communicate key messages contained in reports, one can explore other avenues including news media, social media, one-on-one meetings, workshops and seminars, etc.

Briefs are widely available and attractive to read. However, they must be targeted to specific policies to work well. They should also be well-written or else will be difficult to understand, as much information will get omitted from a brief. For a full set of recommendations on how to write effective policy briefs, see Balian et al., 2016.

## **Both should be used in dissemination to policymakers.**

Start with briefs – they get policymakers’ attention. You also want to make them widely and systematically available, e.g. via information systems such as BISE. Be sure to start with a “policy hook” that captures the readers’ interest. It is also helpful to include a summary of the key points, a list of recommended actions, a section on why the issue matters, what policy can do about the issue, and a list of further reading. Also, don’t forget to provide a point of contact!

What about reports being used for evidence? Often, for decision-makers to be influenced by an idea or information, they may need to be convinced of the quantity and quality of evidence, so detailed written reports can actually help with this. In these reports though, it is helpful to clearly acknowledge and communicate the extent of any uncertainty and gaps in knowledge.

## **Scenarios**

- Scenarios often aim at raising public awareness, for example by communicating emerging issues.
- The goal of scenarios for policymakers is to help them make more informed decisions about which policy to go ahead and implement.

It is OK to show only limited options in cases where scenarios are strongly linked to a certain policy development, and when the policy cycle is turning towards implementation.

- Scenarios are more likely to influence behavior of policymakers if they assess plausible future consequences of real policy choices (not just hypothetical).
- Using interactive visual tools and maps helps.
- Scenarios are especially useful during the Policy Formulation phase, as this is when policy options get assessed. Scenarios can help policymakers understand the specific situations and the different options, as detailed and comprehensive as possible.

### **Applying this to biodiversity**

- Failure to advance in managing biodiversity has been identified as “a collective failure of the science-policy process” (Larigauderie & Mooney, 2010).
- There is a diverse range of institutionalized SPIs – not only because of the broad definition, but also because knowledge of biodiversity is produced in many different ways by many different organisations – therefore it gets used for various institutional contexts
- It is important to know where/how/why biodiversity goals might conflict with the goals of other sectors. Using consensus to formulate policies can help make the policies more appealing to wider audiences/interests.

Emerging issues often require input from various organisations and individuals. Involving key people and institutions as knowledge brokers can help facilitate mutual understanding between both the scientific and policy actors. Informal face-to-face interactions can also help and reinforce strategic dialogue.

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