Improving the Science Policy Interface for Biodiversity and Ecosystem Services in Europe

DG Environment contract:
Towards an EU mechanism interfacing science and policy
on biodiversity and ecosystem services
(Reference No. 07-0307/2013/661961/SER/B2)

Summary report and recommendations on
Improving the Science-Policy Interface
for Biodiversity and Ecosystem Services in Europe

December 2014

This report has been compiled and synthesized by
Carsten Neßhöver¹, Patrick ten Brink², Estelle Balian, Sybille van den Hove³, Marie Vandewalle⁴, Allan Watt³, Heidi Wittmer¹ and Juliette Young³

¹ Helmholtz Centre for Environmental Research (UFZ, Germany)
² Institute for European Environmental Policy (IEEP, UK)
³ Natural Environment Research Council Centre for Ecology and Hydrology (CEH, UK)
⁴ Median S.C.P (Spain)

The document does not represent the official, formal position of any of the participants. The views expressed in the document do not represent the views of the European Commission
## Table of Content

Executive Summary ......................................................... 4

1 Introduction and background ........................................... 8

2 Lessons learned .............................................................. 9

2.1 Approach ........................................................................... 9

2.2 Lessons from practice ..................................................... 11

2.3 Lessons from focus groups and interviews regarding an EU mechanism interfacing science and policy on biodiversity and ecosystem services ..................................................... 16

3 Recommendations to policy makers for improving the science-policy interface for biodiversity and ecosystem services ................................................................. 17

3.1 A functional view of science-policy(-society) interfaces .......... 17

3.2 Prerequisites ...................................................................... 18

3.2.1 Prerequisite 1: Strengthen procedures for defining policy evidence-needs to be addressed by SPIs and identifying the according channels ................................................................. 19

3.2.2 Prerequisite 2: Support for scoping of topics for policy attention ..................................................... 21

3.2.3 Prerequisite 3: Networking and capacity building for SPI activities ..................................................... 22

3.3 Functions for policy support and their potential improvements ..................................................... 24

3.3.1 Function 1: Horizon scanning and foresight – with science and from science ..................................................... 24

3.3.2 Function 2: Addressing short-term expertise needs ..................................................... 26

3.3.3 Function 3: Providing consolidated views from science ..................................................... 27

3.3.4 Function 4: Identifying biodiversity policy-relevant research knowledge needs and priorities to inform EU and Member States’ research strategies ..................................................... 29

3.3.5 Function 5: Communication to inform public debate on complex issues ..................................................... 31

4 Synopsis and potential next steps for improving the science-policy-society interfaces for biodiversity and ecosystem services ..................................................... 32

4.1 Embedding biodiversity SPIs in the broader SPI landscape ..................................................... 32

4.2 The role of an EU support mechanism – prerequisites and functions ..................................................... 33

4.3 Implementation options ..................................................... 33
4.4 Potential next steps in 2015/2016........................................................................................................... 34

5 Annexes....................................................................................................................................................... 36

Annex 1: The Policy Cycle, Stakeholders, Evidence provision........................................................................... 36
Annex 2: Lessons learned from case studies.................................................................................................... 37
Annex 3: Potential Building Blocks................................................................................................................ 42
Annex 4: Cases selected - short description and rationale for their selection ................................................. 45
Annex 5: Further cross-cutting governance tasks ............................................................................................ 46
Annex 6: Examples of potentially relevant bodies/institutions for interacting with an EU support mechanism (indicated in bold) and glossary of acronyms................................................................................. 47
Annex 7: Potential topics for pilot testing suggested by participants to the workshop on November 7th, 2014........................................................................................................................................... 51
Executive Summary

Background

As part of EU environment policy, some very complex and sensitive issues are being addressed with important impacts on biodiversity, society and the economy (e.g. impact of GMOs, invasive alien species, impact of neonicotinoids on bee decline, impact of climate change on biodiversity). In recent years, considerable progress has been made to improve and share the evidence base required to tackle such issues, for example through the development of Environment Data Centres and Biodiversity Information System for Europe, the work of the European Environment Agency, the Joint Research Centre, Eurostat, and research activities funded by EU Framework Programmes and Horizon 2020.

In this context, decision makers have to deal with diverging scientific interpretations of facts, different sources of knowledge, values and understanding, the challenge of distinguishing information from disinformation, which in turn may reflect different interests and opinions among stakeholders and within society on important issues. Improving the evidence base and the science-policy interface (SPI) should help increase the effectiveness of and add value to European policy making across each step of the policy cycle - from identifying issues needing political attention, to framing the policy questions, proposing concrete measures that are understandable, practicable, implementable and enforceable, while at the same time being effective at addressing concerns and efficient solutions.

The improved evidence base and SPI should also facilitate meeting the EU’s 2020 biodiversity strategy targets, the international commitments and help mainstream biodiversity issues into wider EU policy making, improving its added value to EU citizens, society and the economy. The main objective of the present project was to identify knowledge needs and gaps for EU biodiversity-related policy and to suggest policy options, building on and complementing existing structures wherever feasible, for designing a science-policy interface on biodiversity and ecosystem services that would help fill these gaps. The findings presented here are based on the lessons learned from practical case studies, focus group discussions, and interviews with policy makers and experts.

A glossary of acronyms can be found in Annex 6

1 Throughout the report, we preferably use the established term science-policy-interface(s) (SPI) to address the interactions between knowledge holders and decision-makers. Both sides of the interface might nonetheless be understood more broadly: science is a subset of potential forms of knowledge that might be relevant at the interface, policy is just one arena of decision-making which might be addressed by the interface. Also forms of the interface might explicitly include societal actors in the interactions, making the interface to a science-policy-society interface. Where these broader framings are specifically relevant, we refer to them explicitly (e.g. chapter 3.3.5), otherwise we use the more focussed understanding of SPIs.
Functions and prerequisites for science-policy interfaces on biodiversity and ecosystem services and potential next steps to address them

Five major functions and three prerequisites were identified for an improved science-policy interface on biodiversity and ecosystem services. Together the functions and prerequisites have the potential to improve the evidence base and buy-in of EU policy making, the effectiveness and added value of EU policy, as well as to support its (scientific) credibility and legitimacy.

- **Function 1: Horizon scanning & Foresight.** Identifying environment-related issues that require policy attention but are not yet recognised as such. Some of these issues might not be new to science but have not been addressed adequately by policy yet. This function could help identify biodiversity policy needs and inform EU and national work programmes.
  
  Potential next steps from the policy side:
  - Further strengthen joint foresight activities across Commission services and EU bodies
  - Make better use of scientific horizon scanning expertise and knowledge to feed into foresight activities and policy planning

- **Function 2: Addressing short-term expertise needs.** Advice needs in policy can arise at short notice. In these cases, quick and sound scientific input is needed since in-depth, state of the art reviews may well provide answers that come too late.
  
  Potential next steps from the policy side:
  - Strengthen informal advice
  - Set up a single entry point for short-term requests and identify ways to address it
  - Mainstream the access to knowledge from EU-funded projects

- **Function 3: Providing consolidated views from science.** There will always be different arguments and positions vying for attention and influence, however there is a need for consolidated views from science taking into account different disciplinary perspectives and methods and explicitly including diverging views as necessary in knowledge assessment processes.
  
  Potential next steps from the policy side:
  - Support the identification of relevant knowledge holders and stakeholders for assessment processes
  - Ensure regular feedback from policy during an assessment process
  - Establish “pilot” studies for demonstrating benefits of new approaches and refining procedures

- **Function 4: Identifying biodiversity policy-relevant knowledge needs and priorities to inform EU and Member States' research strategies.** Research policy needs to regularly screen for and identify new research and innovation areas and this requires a more systematic identification of research gaps matching policy needs.
  
  Potential next steps from the policy side:
  - Ensure links with and build on other functions
  - Process to decide on use of different channels to obtain inputs into agenda setting
  - Build on existing structures (e.g. EU Environment Knowledge Community - EKC²)

² EKC is an EU interservices group involving key environmental data users and providers, i.e. DG ENV, DG CLIMA, DG JRC, DG ESTAT, DG RTD and EEA to strengthen the knowledge base for the 7EAP.
Function 5: Communicating to inform public debate on complex issues. This function will allow for an additional voice, independent from policy actors or interested parties involved, to engage in current discourses on an informed basis, to build trust and try to ensure that potential trade-offs, uncertainties and complexities are adequately communicated.

Potential next steps from the policy side:
- Jointly identify topics for according communication activities

To achieve further progress in these functions, they need to be complemented and underpinned by activities in the following prerequisites:

Prerequisite 1: Strengthen decision procedures on evidence-needs. Within policy, procedures should be established or formalised to ensure regular exchanges on knowledge needs across policy sectors and institutions and on how these needs should be addressed. Such a procedure could be based on existing governance structures (e.g. EU Environment Knowledge Community).

Potential next steps from the policy side:
- Improving/formalising the general approach to evidence
- Strengthen the exchange on knowledge needs across services and beyond and (mid-term) set up a continuous exchange link between them

Prerequisite 2: Support for (joint) scoping of topics for policy attention. The joint scoping of a particular topic between policy and science is crucial to identify whether new knowledge needs to be generated (Function 4 above), or whether the existing knowledge can already address an issue (Functions 2 and 3 above).

Potential next steps from the policy side:
- Identify relevant institutions and experts in policy for scoping groups
- Clarify and define policy questions to help knowledge identification
- Support the identification and engagement of additional stakeholders in scoping

Prerequisite 3: Networking and capacity building for SPI activities. Efficient interaction between policy makers and experts and advisors should make knowledge more easily accessible. The Open Data policy of the European Commission should be systematically applied within and outside (e.g. RTD-funded research projects). There is a need for capacity building for experts wanting to engage in science-policy interfaces, as well as for those on the policy side seeking to interpret the range of available knowledge.

Potential next steps from the policy side:
- Development of joint framework for the use of knowledge in decision-making
- Strengthen the Knowledge-related Networking in the Commission and other EU bodies
- Capacity building on science-policy(-society) interfacing, and on specific topics
The role for a potential EU support mechanism as part of a broader science-policy interface

While the study shows that all functions are already addressed by a number of activities and actors at the science-policy interface, most of the functions, given that prerequisites are addressed, would profit from being connected through a dedicated support mechanism that is organised jointly by science and policy and involve the society. The challenges and opportunities of the science-side of such a mechanism have been thoroughly investigated, for example, via the approach developed in the BiodiversityKnowledge project. The policy side still remains less developed and would firstly need to address prerequisites 1 and 2. Implementing such a support mechanism would therefore be a stepwise process, jointly undertaken between both sides (while involving relevant other stakeholders and be open to observers). This should aim for an early “proof of concept” by suitable pilot activities on the different Functions identified.

Potential next steps in 2015/2016

Progress would be a step-wise process, founded on commitment and actions. A strategy is needed to outline what can be done by whom in the short, medium and long term to improve the science-policy interface for biodiversity and hence for improved governance, better regulation, and over time, improved implementation. Recommendations towards this goal include:

a) Discuss and develop the contribution of an EU support mechanism and related developments to the implementation of the 7th EAP (cf. Action 5)
b) Identify within policy one or two pilot cases (such as impact of synthetic biology or nature-based solutions to societal challenges) to conduct small scale, guided work on a relevant topic for function 3 - Providing consolidated views from science;
c) Discuss and develop a common knowledge repository for the policy relevant results of EU funded research projects taking into account ongoing efforts and developments.
d) Organise workshops/ events to promote an EU support mechanism for biodiversity and ecosystem services in the broader context of discussions on science-policy interfaces and strengthening the evidence base for policy;
e) Create an electronic exchange group (via Yammer or similar social media system) to allow involved policy makers and others to informally exchange information over recent science-policy developments;
f) Implement the first pilot phase for an EU support mechanism for biodiversity and ecosystem services by providing knowledge support to Environment and R&I policies via the Coordination & Support Action-Call in H2020.

3 http://www.biodiversityknowledge.eu/
1 Introduction and background

Considerable progress has been made over recent years on establishing a European-wide knowledge base for environment policy in general and biodiversity conservation in particular. European Environment Data Centres (EDCs) have been established, overseen by DG Environment and hosted by the European Environment Agency (EEA), the Joint Research Centre (JRC) and Eurostat (ESTAT). More recently, information services have been added and further developed such as the Biodiversity Information System for Europe (BISE) established in 2010 by the EEA as a key tool for biodiversity and ecosystem service information management. Despite these efforts, the transfer of knowledge from research to policy and vice versa is still considered insufficient, with difficulties over access to research data/information, maintenance of databases, provision of metadata associated to the research data, consolidated evidence base to address specific policy issues, etc.

In 2011, the European Commission - DG Environment commissioned a consortium led by UFZ to carry out a scoping study “Towards an EU mechanism interfacing science and policy on biodiversity and ecosystem services” (Reference: ENV.B.2/SER/2011/00424). The main goal of the contract was to identify the best approaches to designing a European mechanism as a Science Policy Interface (SPI) in the area of biodiversity and ecosystem services, building on and complementing existing structures wherever feasible. The key function of such a mechanism would be the effective collation, analysis and dissemination of results from biodiversity-related research under a comprehensive and widely recognized framework with a view to fostering effective uptake and supporting the effective implementation of adequate policies within the EU and the assessment needs of the recently established Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES).

The first year of the contract built on knowledge from existing projects and initiatives (e.g. FP7 research projects on interfacing biodiversity and policy - such as SPIRAL and BiodiversityKnowledge) exploring the general challenges and potential functions for an EU mechanism on biodiversity expertise, taking the example of the initiative on Mapping and Assessing of Ecosystems and their Services (MAES) (cf. Target 2, Action 5 of the EU Biodiversity Strategy to 2020). The second year focused on the development of options for an EU mechanism, building on the needs from different Commission services concerned with policies relying on or affecting biodiversity and ecosystem services. During the third year different policy examples related to biodiversity and ecosystem services in Europe (e.g. impact of neonicotinoids on bees and, draft regulation on Invasive alien species…) were analysed to identify strengths and weaknesses of SPIs in these cases, as well as ex ante identification of further knowledge or support needs for the implementation of Target 2 of the biodiversity strategy, which aims to maintain and restore ecosystems and their services by 2020. The goal in this final year is to propose a series of key components or building blocks for operationalizing the policy side of an EU mechanism,

---

5 http://biodiversity.europa.eu/
6 Definition of science-policy interface: 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 and/or research. (Adapted from van den Hove 2007)
7 http://www.spiral-project.eu/
8 http://www.biodiversityknowledge.eu/
9 http://biodiversity.europa.eu/maes
Improving the Science Policy Interface for Biodiversity and Ecosystem Services in Europe

to identify potential steps to improve existing activities of science-policy interfaces and to complement it with additional ones, as appropriate.

In this report, we first present a comprehensive analysis of the lessons learned in the project (chapter 2), starting with the lessons learned from the practical case studies (2.2). Then, we put them into context of more general lessons from earlier work in the project on the needs at the science-policy intersection from a biodiversity policy perspective (2.3). Chapter 3 then brings these insights together to discuss the potential for enhancement of the current SPI landscape based on five functions. After discussing three prerequisites that have been derived from the work so far (3.2), we discuss the five functions in more details and outline which activities could be enhanced or set up to improve the current performance on them (3.3).

Finally, chapter 4 summarises the findings and identifies key potential activities as next steps to enhance science-policy interaction on biodiversity and ecosystem services in Europe building on the results of the contract final workshop in November 2014, whose aim was to discuss the current findings with representatives from different Commission services.

2 Lessons learned

2.1 Approach

This section presents the key lessons learned from the analysis of case studies on science-policy interfaces, from previous workshops (e.g. EU mechanism interfacing science and policy on biodiversity and ecosystems Brussels workshop in October 2013), focus groups discussions during this three year study (2012-2014), as well as wider SPI literature and team experience (e.g. FP7 KNEU and SPIRAL projects and policy advice projects).

A particular focus of the third year of this contract was to further explore specific case studies to better understand how the SPI worked in practice, identify lessons that could be drawn from past and ongoing SPIs, and to clarify needs for future SPIs for biodiversity and ecosystem services. The seven case studies were on: Invasive Alien Species, bees and neonicotinoids, eutrophication, ecosystem-based adaptation to climate change, GMOs, biofuels, and synthetic biology (see Annex 4 for more details).

The case analysis explored how the scientific evidence base contributed to the decision-making process, looking at the types of information contributed, in what form, by which stakeholders, at what point(s) in the policy cycle (See Figure 1 and Annex 1 for details) – from:

- Issues identification & scoping (Step 1),
- Identification of policy options (Step 2),
- Designing and assessing the policy options (Step 3),
- European Commission proposal (Step 4),
- Policy negotiation between the EU institutions (Trilogue between the European Parliament, the European Council and the European Commission),
- Formal adoption of EU legislation (Step 5), and
- Legal Transposition (into Member State legislation) and implementation (Step 6)
- Monitoring & reporting, Inspection & enforcement and Evaluation & Review steps (Steps 7 to 9)
The case study analysis identified the strengths and weaknesses in the context of the evidence-based policy making process, but also highlighted opportunities and threats for improving the SPI for both the specific case and for the wider SPI. Potential ways to address these facilitating and hindering factors provided insights on practical functions of an eventual future EU mechanism interfacing science and policy on biodiversity and ecosystem services.

Figure 1: Overview of types of contributions that an EU mechanism could deliver for a science-policy interface for biodiversity and ecosystem services. Blue boxes represent the general policy cycle, green boxes the general types of (scientific) knowledge that could contribute to them. Orange boxes show examples on how different interface activities supported policy making in the cases analysed.

---

10 See Annex 1 for further details on the policy cycle, the stakeholders engaged at different steps, how the information was transmitted - in what form via what process - contributing at different stages of the policy cycle. See Annex 2 for details on the strengths and weaknesses analysis results of the case studies.
2.2 Lessons from practice

Lessons learned from case studies are compiled under main lessons learned with references to the policy cycles they particularly apply, but can be summarized in the following

- A dialogue and cooperation between sectors of Commission services can prove invaluable
  - This is especially needed at the stage of issues identification & scoping and for the identification of policy options.
  - For example, Invasive Alien Species (IAS) requires cooperation between different policy sectors and related Commission services – both to incorporate biodiversity in all relevant sectors/policies, and to take account of the sector contexts for policy proposals. The IAS SPI process shows that engaging relevant services can take a considerable amount of effort and time but leads to significant benefits for the robustness of policy recommendations and buy-in.
  - While inter-services cooperation has markedly improved over the years (e.g. through joint steering groups for consultancy requests and multiple services owned initiatives), difficulties remain in some areas – for example issues arose where established bodies already working on a case are reluctant to cooperate with other partners even when these have useful knowledge to share – e.g. European Food Safety Authority (EFSA) as regards GMOs and bees. Furthermore, there is a perception that some services may refrain from becoming deeply involved in an issue (joint study, policy initiative) or may question the results, if they are not officially in charge of a process/an issue (bees and neonicotinoids, synthetic biology).
  - In particular efforts need to be made to have more “common discourse” on common issues across services, or as appropriate, more explicit definitions of terms in plural discourses. This can help in joined up thinking for policy making and implementation (e.g. Cohesion Policy and its implementation). In fact policy papers often refer to the same issue with different terms, potentially missing opportunities for policy coherence, delays in common positions and hence increasing administrative burdens. More coherence could be useful at the issues framing stage and subsequently.
  - One example is the various terms related to nature and natural capital that are used by different Commission services – e.g. ‘green infrastructure’, ‘nature-based solutions’, ‘ecosystem services’, ‘natural capital’. In some cases (e.g. ecosystem services and natural capital) this is an evolution of terms; in other cases (e.g. green infrastructure and nature-based solutions) they refer to different policy contexts and objectives, which may lead to different perception by the stakeholders.
  - A support mechanism that facilitates cross-services discussions and sharing of information could help as good practice currently relies to a fair extent on good will and personal initiative and commitment.

- A policy relevant research and innovation agenda, associated with emerging issues and early warnings, is needed to inform the policy agenda.
  - The need for an improved identification of emerging issues that merit science and policy attention – these include horizon scanning for problems (e.g. threats of future IAS) or issues that may become problems (e.g. impact of synthetic biology on biodiversity), as well as emergency issues (e.g. bees and neonicotinoids). This will give more time to prepare and/or a more timely response and hence facilitate suitable policy response, building on improved timely scientific evidence.
Improving the Science Policy Interface for Biodiversity and Ecosystem Services in Europe

- This was illustrated in the bee case study where an earlier analysis of the causes of bee population decline, for example, including analysis of the effects of single and multiple chemicals would have been helpful. Setting a ‘science for policy’ research agenda can also be informed by scenario analysis and modelling that may highlight possible future problems or needs and hence encourage policy reflections to help future policy.

- Early consideration of knowledge needs for upcoming items already on the Commission work programme and how this can effectively be provided (by which stakeholder using which process or mechanism) at the right time, would also facilitate effective policy making.

- There is a need to invest in a transparent understanding regarding stakeholder and institutional interests as well as “interests behind knowledge” (i.e. who is behind the research and whether there is any vested interest that might bias the results).

  - It is particularly useful at the policy scoping stage and it is also very relevant for the negotiations step in the policy cycle.

  - An improved transparent assessment would arguably have been particularly helpful around the issues of biofuels and GMOs. While many experienced policy officers will understand likely bias in information and conflict of interest, transparency can support the framing of policy questions, and help time-pressed MEPs and their advisors in the trilogues.

  - In practice, multiple information products circulate to “inform” policy, feeding in an often rich and diverse evidence base to support policy making. While this can be very positive, in controversial areas the mix of different types of evidence of different robustness and legitimacy may make it difficult for some stakeholders and policy makers to distinguish between robust knowledge and lobbying/biased documents in the guise of analysis. This has been seen as ‘problematic’ during the trilogue negotiations stage (Council, Parliament, Commission) - in the areas of GMOs and biofuels in particular. Each of these cases include significant business interest and public concern and it can only be expected that there will be problems of trust, reliability, with risks for balanced evidence-based policy making. The role of “authorities” on the subject can, in principle, help here – e.g. EFSA and JRC. “Review papers”, synthesising the evidence carried out by credible authors (e.g. national academies of sciences or independent institutes), could also be useful – especially if done transparently, identifying key factors affecting results, noting gaps in knowledge openly and highlighting issues that might create “bias” in results and remaining uncertainties. Similarly, there could be merit in regular “debunking the myths briefings” to reduce resources wasted on the wrong debates (e.g. could have been useful re GMOs). This is particularly important at the post Commission proposal negotiation stage – the trilogues – where the EP in particular has proven increasingly willing and able to make amendments to proposals - in some cases strengthening and in other cases weakening proposals. It is indispensable to have a transparent identification of interests (i.e. who financed which study) as well as an earlier identification of interests and incentives to help advisors/MEPs interpret the evidence presented to them.
Exchange and sharing of knowledge, experience and expertise are considered essential in SPI processes themselves. Evidence databases that make existing research readily available have proven valuable tools.

- This would benefit from further development and promotion of existing mechanisms/initiatives such as the BISE, and the OPPLA platform\(^\text{11}\) (joint venture between FP7 OPERA\(^\text{12}\) and OpenNESS\(^\text{13}\) projects as well as the engagement with the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) on the international level. This can support multiple stages of the policy cycle, including the review stage, problem identification and framing. The set-up of a Network of Knowledge (NoK) process (or equivalent approaches), is specially designed to include a broad range of expertise and to mobilize further contribution, including from countries with gaps in official data.

- The case study analyses highlighted the importance of expert groups or expert networks as well as access to consolidated data/information in building a scientific evidence base.

- Expert networks and efforts made to aggregate and open access to data are especially critical for the identification of issues, scoping resulting policy questions and for assessing impacts of policy proposals. In particular existing networks of experts and databases can help take into account in policy assessment the practical realities across the EU-28 Member states, and sometimes impacts abroad. This challenge can be facilitated by the existence of expert networks (as illustrated above by the benefits in the IAS case), data by the EEA’s European environment information and observation network (EIONET) and from Eurostat, as well as the set-up of a Network of Knowledge (NoK) process.

- Data collection and policy scoping and assessment studies have proven valuable mechanisms in providing the scientific evidence base, independent analysis, and transparent data trail that help support the framing of issues, identification of policy measures and their assessment and hence support the robustness and acceptability of policy proposals, facilitating its hearing in the Impact Assessment (IA) board, inter-service consultation and eventual negotiation and adoption. Examples where scoping studies helped frame the issues and identify policy options include: Invasive Alien Species, Green infrastructure and Climate adaptation studies. Examples of policy areas where studies helped in the Impact Assessment stage, include the recently adopted Invasive Alien Species legislation (September 2014), as well as the legislation on Access and Benefit Sharing passed in April 2014.

- Expert groups can help support the identification and framing of options. In the case of IAS, good expert networks and cooperation between experts were particular strengths of the process. The existing expert groups and networks (e.g. NOBANIS\(^\text{14}\), NEOBIOTA\(^\text{15}\), IUCN Invasive Species Specialist Group etc.) and the DAISIE\(^\text{16}\) research community formed a comprehensive advisory network from which the IAS policy-making process

\(^{11}\) www.oppla.eu
\(^{12}\) http://operas-project.eu/about
\(^{13}\) http://www.openness-project.eu/
\(^{14}\) http://www.nobanis.org/
\(^{15}\) http://www.neobiota.de/definition_neobiota.html
\(^{16}\) http://www.europe-aliens.org/
benefited. Given the earlier work at international and European (Bern Convention) level, several of the experts were already well connected and familiar with the IAS policy-making process, advocating actively dedicated EU action on IAS both towards the Commission and the European Parliament. Expert groups can take time and resources to set up and care is needed to identify where the expert groups will be cost-effective as well as the time-line of their utility – in some cases the expert groups will be invaluable beyond the policy development steps also during implementation (e.g. IAS – see later point regarding implementation).

- The need for a strong scientific evidence base continues after legislation is agreed through the implementation stage - e.g. having longer term research and monitoring on key themes and keeping expert networks active to support implementation, and due inputs in policy review and framing and formulation of new policy needs. This is illustrated by the IAS regulation's need for identifying species to be added to the list of species of Community importance for the Scientific and technical committee. This Comitology approach is common within EU legislation, where committees of representatives of Member States and/or experts have de facto important legal responsibilities.

- There is also a need for policy review stages to be suitably informed by scientific evidence. This is true both for regular review of policies and programmes (e.g. CAP, Cohesion, CFP and midterm reviews), the new approach with fitness checks and health checks and the wider REFIT process17. It is vital that scientific knowledge provision processes allow the evidence base to be effectively taken on board. There is a fundamental need for solid and neutral evidence base to correctly portray the balance of risks and uncertainties to help policy makers decide, in their policy or programme review, whether the risks of doing nothing outweigh the risks of doing something, and what the likely impacts and trade-offs are of different policy interventions or reforms they are considering.

- The need for a continued evidence base could be partly addressed by longer-term investment in the databases (e.g. FP6 DAISIE project created a valuable evidence base despite the fact that no funding could be found to keep it up-to-date after the completion of the project) to invest in continuity of research, keeping the expert networks active (i.e. to support Comitology through formal government representatives and in cases also less politicised expert networks), and clarity regarding who will provide what information to help meet implementation challenges. The need for evidence to support implementation is equally true for European policies and programmes – e.g. Cohesion Policy, Common Fisheries Policy (CFP), and Common Agricultural Policy (CAP) could each benefit from improved evidence base for their objectives, to support mainstreaming of biodiversity – maximising synergies and avoiding or minimising trade-offs.

- Communication is key and the question of neutrality is important.

  - EU scientific "authorities" (e.g. EFSA, EEA and JRC) have important mandates and roles in the SPI, and are clearly scientifically respected organisations. However, in practice they have been seen as sometimes not offering clear scientific judgement and not speaking out (more strongly) on policy options – e.g. GMOs and Biofuels – when the science would actually merit coming to a specific judgement. JRC in the biofuels case

17 REFIT is the European Commission's Regulatory Fitness and Performance programme. Action is taken to make EU law simpler and to reduce regulatory costs. (Source: http://ec.europa.eu/smart-regulation/refit/index_en.htm)
offered solid scientific work, however, the language was intentionally very neutral, which in practice left possibilities for misinterpretations. EFSA in the GMOs case is a respected authority for food and feed safety and environmental risk assessments according to well-established guidelines and for providing scientific advice\textsuperscript{18}. However, the issues covered by the mandate of such institutions might not address all relevant aspects of a topic. In addition, their input is subsequently interpreted in the political process. The institutional realities (i.e. practical power and voice in a political process) as well as the risks associated with formal roles of organisations (i.e. via their constitutions and mandates) need to be understood and efforts made to address them if and where they could weaken the SPI. This could be either through clarifying mandate/roles (formally or in practice) and/or ensuring complementary measures and processes – i.e. having additional contributors of SPI where suitable to ensure a fully balanced presentation of the science.

- In addition, the role of the Chief Scientific Advisor (CSA)\textsuperscript{19} of the European Commission can be valuable in translating evidence and provide a clear synthesis of the scientific evidence base (as is the remit of the CSA) - to speak out and flag problems and represent the wider scientific community. However, no single person can understand all the issues and the prominent role in a political context creates a risk of vested interests trying to influence the CSA. However, the CSA is not meant to replace formal science advice, but meant to complement it by "giving science a face". The potentials as well as the challenges of the CSA position need to be understood and efforts made to ensure that there are several channels of providing scientific insights for a policy process. One option pursued by the CSA was to set up a network of scientific experts from across Member States to support the CSA (i.e. to facilitate quick response to emerging or contentious issues). Another option suggested in a focus group was to ensure full transparency and complement it with formal hearings to inform positions (e.g. UK House of Commons Select Committee procedures – where a group of eminent experts are invited to provide evidence to the select Committee, face a range of questions by the Members of the Committee and all contributions are noted, published (verbatim) and open to the public).

- There is a need to communicate more with the wider public on biodiversity and ecosystem services and the implications for and role of policy – creating public support for and engagement with policies. In an increasingly complex, inter-connected and competitive world, improved SPIs will be invaluable to ensure that public, longer term interests are fully understood and that divergence between public and private interests are transparent. It will also help developing a clearer picture when divergent scientific views are presented, in particular by presenting positions and evidence in light of the incentives that those funding the research face.

\textsuperscript{18} See also EFSA website: http://www.efsa.europa.eu/en/aboutefsa.htm
\textsuperscript{19} The position of CSA in the European Commission is currently being re-evaluated (status December 2014)
2.3 Lessons from focus groups and interviews regarding an EU mechanism interfacing science and policy on biodiversity and ecosystem services

Important general challenges were identified through exchanges with policy makers\(^\text{20}\) that add additional perspectives for the general framing of needs at the SPI. These include:

- **the need to frame questions more broadly**, and in an unbiased manner, in collaboration between policy makers, scientists and other relevant stakeholders, to include all aspects relevant for policy making (e.g. socio-economic implications; especially relevant in the early stages of the policy cycle)
- **having access to knowledge on impacts on the ground and knowledge on policy design across Member States** and (relevant throughout the policy cycle)
- **the need to present a consolidated (comprehensive, coherent and independent) position from science** as opposed to partial bits of scientific information that often contradict each other (relevant especially in early and medium stages of the policy cycle)

There is also a clear consensus that any effort to improve the science-policy-society interface should build on and complement existing structures rather than try to replace them. These existing ones include those listed in Annex 3, but should also include the existing informal ways of science-policy-society interaction, which are often as important as formal mechanisms. Further the following requirements for improving the EU science policy interface for biodiversity and ecosystem services were specified:

- It should be able to quickly respond to needs raised, follow a simple process, be focused with clear objectives.
- It would be useful to have a single entry point for different types of evidence-needs.
- It should be **transparent** in all its processes
- It should be authoritative - **credible, relevant, legitimate, iterative, inclusive, and independent from vested interests** - adequately reflecting the consolidated views from science and other knowledge holders based on the best available knowledge, while also including diverging scientific views and addressing uncertainties.

These points are challenging and often conflicting\(^\text{21}\), as balancing the different needs, e.g. credibility and relevance, or inclusiveness and quickness, will sometimes conflict, so that processes in a dedicated mechanism need to be flexible, which again adds a certain degree of complexity to steering and conducting such processes, which might interfere with the objective of having a “simple” structure.

In order to achieve credibility as one of the main attributes, the coordination of scientific aspects of the work of an EU support mechanism should remain independent from political influence and vested interests and open to observers. A possible approach has been developed and presented by the FP7

\(^{20}\) During the first years of the contract, the team held several smaller workshops and focus groups meeting with actors from different EU institutions to discuss their perceptions and interest on the science-policy interface for biodiversity. The results of these meeting where summarized in the first and second year contract report.

\(^{21}\) See SPIRAL briefs on credibility, relevance and legitimacy: http://www.spiral-project.eu/sites/default/files/13_Brief_CRELE-choices.pdf
Improving the Science Policy Interface for Biodiversity and Ecosystem Services in Europe

KNEU project with its recommended design for a Network of Knowledge (NoK)²². The project identifies four main functions of such a Network of Knowledge and how it could be coordinated with a focused, yet flexible structure, balancing interests from (knowledge holder) institutions and the need to involve individuals with their personal expertise. The four potential functions of the NoK were identified as 1) a Networking and capacity building function (NET), 2) an answering-decision-making-needs function (ADN), 3) a Research Strategy function (RS) and 4) an International Collaboration function (IC)¹⁰.

Whereas the FP7 KNEU project analysed potential improvements of the knowledge provision, the analyses, interviews and workshops in the present contract have focussed on the needs from EU decision making and primarily the EC. Results show that the potential functions can be further diversified, as knowledge is needed to address different aspects and perspectives, according to its role in the policy cycle, and the urgency to receive an answer, to name but two issues.

The challenge is to respond to the above lessons on SPI, identify the functions that could support an improved SPI, the prerequisites for progress, and which actors could do what to take things forward – i.e. developing a road map, with building blocks of actions that not only make better use of business-as-usual successes as regards SPI, but also look at improved mechanisms and governance for biodiversity within Community policies and programmes, and clearly outline what complementary role an EU support mechanism for biodiversity SPI could play. The key SPI functions and pre-requisites are presented in the next section (with building blocks in Annex 3) and the road map to realise the improved SPI is outlined in Chapter 4.

3 Recommendations to policy makers for improving the science-policy interface for biodiversity and ecosystem services

3.1 A functional view of science-policy(-society) interfaces

As shown, a multitude of different pathways exist today that bring knowledge and evidence into the different phases of the policy cycle (see Figure 1). This study highlighted five potential FUNCTIONS that would need further improvement at the intersection between science, policy and society in the field of biodiversity and ecosystem services:

- Function 1: Horizon scanning & foresight
- Function 2: Addressing short-term expertise needs
- Function 3: Providing consolidated views from science
- Function 4: Identifying biodiversity policy relevant research needs and priorities to inform EU and Member States’ research strategies
- Function 5: Communication to inform public debate on complex issues

²² KNEU team (2014): A recommended design for “BiodiversityKnowledge”, a Network of Knowledge to support decision making on biodiversity and ecosystem services in Europe.- online at:
An analysis of the current situation using this functional perspective led to the identification of potential building blocks (existing or new) to improve the performance of SPIs by various means. While some of the functions are clearly related to specific steps of the policy cycle and directly address some of the lessons learned identified in chapter 2 (e.g. functions 1 and 4: early steps); the others might be relevant for different steps in the policy cycle, depending on specific circumstances (functions 2 and 3). Function 5 is broader, addressing public debates around policy development in general. The functions are discussed in detail in chapter 3. For the SPIs to progress in the performance of these functions, certain prerequisites have been identified (see chapter 3.3 below). Functions and prerequisites address the major governance challenges in SPIs in an integrated way. Further cross-cutting governance issues need to be taken into account, but are not discussed in detail here (an indicative list is given in Annex 5).

A frequently mentioned basic challenge in policy making and particularly regarding science-policy (-society) interactions is the issue of ensuring transparency on the sources and processes to obtain, assess and use knowledge in the policy decision process. Although European Institutions can be approached for ‘access to documents’ and will disclose all information regarding a particular procedure as requested, many decision-making processes could gain in legitimacy if their transparency were further enhanced.

An EU support mechanism has the potential to be designed with processes contributing to improve the transparency of exchanges between science, policy and stakeholders. This would for example include a framework to ensure transparency in terms of the people and institutions involved (and their interests), the knowledge sources used, the methods used to process the knowledge, and review processes, but also more openness on how policy decisions are made based on the available knowledge.

As shown by recent analyses of science-policy activities, transparency is key to address the often inevitable trade-offs between credibility, relevance and legitimacy of the processes and the knowledge. A thoroughly transparent process would also help to address the challenge of clearly separating the evidence gathering from the political imperatives and thus avoiding biased evidence which would then come in as “stealth advocacy”. Balancing this with respect to different functions of science-policy interactions is key for success.

### 3.2 Prerequisites

The prerequisites to more effective functioning of SPIs refer to both sides of the interface: policy and science.

---

23 Today, the Aarhus Convention as multilateral environmental agreement which grants the public rights regarding access to information, public participation and access to justice, in governmental decision-making processes on matters concerning the environment, is laying the foundation for transparency. The EU, who ratified the Convention and therefore has the task to ensure compliance not only within the Member States but also for its institutions, has begun applying Aarhus-type principles in its legislation, notably the Water Framework Directive (Directive 2000/60/EC).

24 One potential, yet much broader option, as discussed by the Chief Scientific Adviser, is the set-up of an “evidence-portal” as a starting point to call for evidence on all ongoing legislation processes and an according process to evaluate the knowledge and document in a transparent manner how it is used.
3.2.1 Prerequisite 1: Strengthen procedures for defining policy evidence-needs to be addressed by SPIs and identifying the according channels

**Rationale:** Many issues regarding or affecting biodiversity and ecosystem services cut across sectors. Evidence needs are, however, often formulated within a specific policy sector, and potentially contentious issues where responsibility is not clear from the outset are often not addressed until pressure to do so is quite outspoken. This can lead to reactive policy making under considerable time constraints and heated public debates. A more proactive policy response that tries to mitigate conflicts and frames requests for evidence broadly enough to include all main issues and interests involved from the outset was highlighted as desirable.

In this context, a main prerequisite to all identified functions at the science-policy-society intersection has emerged and consists in improving procedures within policy\(^{25}\), to ensure regular exchange about topics to be addressed, knowledge needs behind each topic (especially if the topic cuts across policy sectors) and how these needs should be addressed. This prerequisite would be essential for all the other functions to be properly fulfilled, and would ensure the relevance of the topics, hence potentially improve the implementation of the outcomes of the different functions.

**Existing options:** There is no specific (inter-service) procedure that could currently handle this prerequisite. Inter-service groups and joint working groups in the Common implementation framework (CIF) including relevant expert groups could be a starting point. A network of scientific advisors across DGs has been initiated, but the further development is not yet decided. Besides these and a number of further elements/ bodies (see Annex 6 for examples), no general “screening” process between services (or with other policy actors) is established. The European Parliament Research Service (EPRS) is being expanded significantly and committees exist to help identify knowledge needed by Members of European Parliament (MEPs) and European Parliament Committees.

**Additional options:** The further development of inter-service exchanges, and/or the further development of the role of scientific advisors across services (e.g. via the EU ANSA or other existing bodies), in consultation with EPRS, or comitology where relevant, could take on the role of regularly screening for topics that may benefit from being tackled by an EU support mechanism (particularly regarding Horizon Scanning – function 2, consolidated views from science – function 4 and research needs – function 5).

The European Parliament Research Service (EPRS) could also help ensure that knowledge is available to MEPs. It could also get involved in knowledge assessment processes carried out by a support mechanism, as appropriate.

In addition to these concrete, environmental-policy-related options, there is a general need to develop a more coherent way within the Commission to deal with evidence in the development of policies, e.g. the evidence portal as proposed by the Chief Scientific Advisor (see chapter 3.1).

**Potential contributions from the science side:** Science has an important role to play in bringing issues to the attention of policy. Different actors from the science side, including a potential Network of knowledge, could highlight areas where policy attention might be desirable. Several potential entry points into the policy process were identified, including e.g. the emerging network of institutions and bodies involved in foresight\(^{26}\) or via direct interactions with MEPs. An initiative to tackle a topic, particularly on potentially contentious issues, is often not taken until stakeholders become very active in

---

\(^{25}\) i.e. across Commission services, agencies, and as needed links to the European Parliament and the Council

\(^{26}\) See Function 1 on Horizon scanning and foresight below.
pushing an issue. Science and other knowledge holders could help getting such topics onto the agenda by highlighting their importance and outlining what knowledge could be relevant.

Potential next steps from the policy side (Prerequisite 1):

**Improving the general approach to evidence:** The challenge of adequately dealing with scientific evidence to support policy making across EU institutions is a very general one. Accordingly, important steps to improve the situation could be to develop coherent strategies for this in the Commission and its services, and develop appropriate procedures, possibly structures (e.g. the use of Knowledge Management Officers\(^{27}\)) and tools (e.g. an evidence portal as proposed by the CSA). Decision making within the Parliament and Council are of a much more political nature than in the Commission, therefore the role of evidence is different. With the recent creation of EPRS, and within it a new foresight unit and a timely advice function for MEPs, options and possibilities for structured access to evidence will be greatly improved; it is still too early to judge outcomes of this transformation. Regarding the Council, a better exchange among CSAs of Member States (or their equivalents) on relevant evidence prior to council negotiations would be helpful. This could contribute to making reasons for decisions taken more transparent. Currently political decisions are sometimes hidden behind “disagreements” on the evidence base. Procedures for disclosing conflicts of interest could also be improved.

Once identified, evidence needs could either be addressed via existing mechanisms like study contracts (main current tool), work of agencies etc., or via an EU support mechanism to conduct activities such as assessments or consolidated views from science (see Function 3). If the latter is decided upon, the policy decision would determine a joint scoping with science and other stakeholders (see prerequisite 2 below). Such a procedure could be based on existing governance structures such as Commission inter-services groups, comitology or Council working parties.

**Strengthen the exchange on knowledge needs across services and beyond:** In the biodiversity and ecosystem services field, a first step could be to strengthen the existing informal networks between Commission services, agencies and other bodies for regular exchange on knowledge needs and decide which topics an EU support mechanism would be used for. A list of potentially relevant topics was identified at the workshop and is included in Annex 7. When some of the structures and procedures mentioned above (EU Agencies Network for Science Advice - ANSA, clearer procedures on how to take evidence into account in policy making) would have further evolved, a more structured approach might become feasible.

**Set up a continuous exchange link (“Policy secretariat”):** Once the above has been clarified, an entry point on the policy side could ensure that exchange between policy makers and an EU support mechanism would not only occur at strategic level, but also on a day-to-day basis. This could be achieved by a person/unit/group within the Commission, responsible for facilitating exchange of information between an EU support mechanism and other knowledge producing activities with the according network across services, agencies and other EU bodies.

**Open questions include:** How the informal or more formal exchange between Commission Services is established and how it is implemented on a regular basis? If and how this is co-ordinated with relevant EP and Council services? If a policy secretariat is established questions of funding and mandate need to be clarified?

\(^{27}\) See for example the recommendations in Millieu & CEP (2012): Assessing and Strengthening the Science and EU Environmental Policy Interface - European Communities, doi: 10.2779/1028
3.2.2 Prerequisite 2: Support for scoping of topics for policy attention

Rationale: An important gap identified (see lessons learned, Annexes 2 and 3) was the often narrow framing of evidence presented. Such framing can fail to address all relevant potential impacts, particularly social and economic ones. The joint scoping of a topic between policy and science is crucial to adequately frame the issues and to identify whether new knowledge needs to be generated, or whether the existing knowledge is sufficient. It also helps to ensure all relevant aspects are covered in the provision of knowledge. For example, in the case of bee decline, a clear definition and framing of the challenges and consequent knowledge needs was missing (see Annex 2). Many SPI processes have shown that dedicated scoping processes help to address topics through joint framing and thus contribute to a better understanding of the underlying challenges.

Existing options: “Scoping” of topics is currently mainly carried out by policy, led by the Commission services, e.g. through inter-service consultations or groups. Depending on the stage in the policy cycle, this might include support by agencies (e.g. assessments, dedicated reports, monitoring of implementation), interactions with expert groups and stakeholders, setting up working groups (e.g. Common Implementation Framework (CIF), as in the case of the MAES initiative), or with support from scoping studies.

Additional options: An EU support mechanism could offer a quick entry point to identify experts for feedback (in science and beyond) and an overview of knowledge on a given topic for quick scoping of requests (e.g. already to support the policy-internal work in prerequisite 1). Often, this will not be sufficient, and official processes could allow for joint scoping activities between policy and science (and other stakeholders) that frame the issue and then specify needs for a more thorough assessment process (function 3, consolidated views) and/or research (input into function 4, research strategy).

Potential contributions from the science side, e.g. via a Network of Knowledge: Science jointly with other knowledge holders will bring crucial expertise on the topics and could help with the structuring of topics across different knowledge domains. They could help refine the questions via an iterative and in-depth dialogue with policy, where the latter ensure policy relevance. The expertise of the Network of Knowledge will also be able to estimate the breadth of the work required and kinds of methods to be used to answer a question and calculate according costs.

Potential next steps from the policy side (Prerequisite 2):

**Joint scoping is crucial:** Policy makers and knowledge holders/scientists will have to work more closely to bring in different perspectives into joint scoping. This may require different people than prerequisite 1, probably more engagement from the desk officer level, rather than scientific advisors or higher level officials.

**Identify relevant institutions and experts in policy for scoping groups:** A joint process within policy is needed between Commission services and possibly beyond (e.g., towards Member States) to decide which institutions and individuals should be involved in scoping exercises of an EU support mechanism. Decisions should be based on a Commission internal analysis of the needs according to the topic. This would ensure a diversity of political and sectoral views and interests from the start.

**Support the identification and engagement of additional stakeholders in scoping:** Policy and the science side of an EU support mechanism will need to jointly discuss and decide on the involvement of stakeholders in the scoping processes. Often, policy will have a broader perspective and closer link to potential stakeholders (which at the same time will often be major knowledge holders) and is in a better position to motivate their engagement. The policy side can thus support the mechanism in identifying relevant experts from business, NGOs, Member States and other relevant groups.

**Open questions include:** In which cases should it be only the Commission and when should the European Parliament and the Council be involved? Who should decide on this?

### 3.2.3 Prerequisite 3: Networking and capacity building for SPI activities

**Rationale:** As a basis to address functions 1-4, it is crucial to have better access to existing knowledge. For this, knowledge holders need to be known, and be enabled to provide their knowledge in policy-relevant formats and timing. This requires information and capacity building on science-policy processes and communication on the knowledge needs of decision making as well as incentives to contribute. Capacity building also refers to policy: they will need to know which knowledge holders and their networks exist and how to address them.

**Existing options:** On the science-side, the last decades have seen a steady self-organisation, often triggered or supported by EU-funded projects building up information infrastructure. This includes ad-hoc workshops and guides to help scientists better understand the policy world – i.e., policy processes, time frames where information can feed into the policy cycle, and in what form.

From the policy side, activities for networking and capacity building do not happen in a consolidated, strategic manner, but are either triggered via the options above (e.g., via membership in advisory boards of projects), or are basically supported by occasional, needs-driven events like conferences and

---

meetings aiming to link decision making with knowledge holders. There is no coherent structure across DGs and other bodies with “evidence translators”, which could support the interface process, and also help increase the scientific literacy of policy makers and other actors. The political groups in the EP have their own advisory groups and receive occasional training on relevant topics. EPRS is still in its infancy but quickly initiating new processes, the Council has no science service at all (and the majority of Member States do not have formally appointed science advisers in government), science does not exist on the organigram of the European External Action Service. There is a need to strengthen the role of science on the Impact Assessment Board, which currently is rather economy-driven. Another problem is that the DGs mostly use “their” Agency (e.g. ENV > EEA, SANCO > EFSA), while other Agencies may also have expertise. To tackle this the Agencies have created last year the EU Agencies Network for Science Advice (EU ANSA), in which the Chief Scientists or equivalents of some 12 Agencies meet and exchange information. Furthermore, in June 2014 the European Science Advisers Forum was launched, the network of government science advisers in the EU and its Member States, with currently 14 Member States participating (those who have such types of role). How these new approaches develop in the coming years, remains to be seen.

Additional options via an EU support mechanism: An established EU support mechanism could have, as one dedicated task, the explicit function of fostering networking and capacity building. Different tools would be possible in this respect: firstly by providing an entry point for easier identification and access to existing knowledge holders; and secondly by organising regular “brokerage” events between knowledge holders and policy makers, or targeted workshops for capacity building on SPI activities (both have been done from time to time by EU projects and the Commission, DG RTD, in the past). Capacity building activities could be improved by also addressing policy makers (in cooperation with existing bodies like the EPRS), which could lead, on a very ambitious level to a dedicated capacity building programme across different addressees. A general set of easily accessible information/training on scientific approaches and on issues such as uncertainty, risk, probability, role of assumptions, causality etc. could be provided.

Potential contributions from the science side via a Network of Knowledge: The Network of Knowledge approach provides a proposal for networking and capacity building and could become engaged and/or manage most of the activities proposed in the previous paragraph.
Potential next steps from the policy side (Prerequisite 3):

Development of joint framework for the use of knowledge in decision-making: The understanding of what knowledge can (and what it cannot) deliver for improved policy-making often differs across policy arenas. Developing a joint framework that specifies the use of knowledge and evidence in policy procedures, including how to assess quality and deal with uncertainty would be an important starting point. DG RTD, together with the JRC, could play a major role in developing such a framework.

Strengthen knowledge-related networking: The Network of Chief Scientific Advisors and the EU Networks of Agencies (EU ANSA) could play a stronger role in the future. At the European Parliament level advisory groups and the developing EPRS are processes that could support capacity building.

Capacity building on SPIs, scientific knowledge, quality and uncertainty: Capacity building activities should be strengthened to address issues of the use and communication of knowledge, assessment of quality and how to deal with uncertainties as well as conflicts of interest, but also how SPI activities can support it. Such capacity building activities should be closely linked to existing ones.

Capacity building for the Members of the European Parliament (MEPs) and their assistants related to specific topics: Additional thematic capacity building activities could complement the above mentioned recommendations. This could be carried out by developing a dedicated meeting format.

Open questions include: How should capacity building on the policy side be arranged (jointly with capacity building for knowledge holders, or separately)? Who would be addressed and how (e.g. assistants of MEPs, different level officers in the Commission), does it make sense to build capacity on procedures of including evidence in policy or rather on thematic issues?

3.3 Functions for policy support and their potential improvements

Building on a reinforcement of the prerequisites, the five functions of the SPI outlined in section 3.1 could be further developed and strengthened. All functions are discussed below by: a) describing them in general, (b) reflecting on existing options to address them, (c) discussing additional options to improve them via an EU support mechanism, (d) short reflections on the need from the science side, and (e) recommendations for possible next steps on the policy side.

3.3.1 Function 1: Horizon scanning and foresight – with science and from science

Rationale: We understand horizon scanning as identifying issues that should receive policy attention but are not yet recognized as such. This might include the need to identify potential lack of knowledge in emerging or already known issues (e.g. bees and neonicotinoids, IAS) or the need to interact with policy makers as well as various knowledge holders to understand challenges related to a topic (e.g. IAS case). Horizon scanning refers to activities to recognize, identify and describe emerging issues for policy and research and constitutes a crucial function of science-policy interfaces. Foresight, on the contrary, is understood as a systematic approach of looking into the future on a specific common issue and in a given policy context. Both, horizon scanning and foresight, may include looking at ecological, social or economic issues and political challenges that call for different types of response, but foresight will have the policy context and impacts of policies in the centre of its work.

---

32 This could be based on the work carried out in the research context, e.g., in the SPIRAL-project
Existing options: A number of foresight/horizon scanning activities exist. One-off activities like the ‘Late Lessons from early Warnings’ reports of EEA and research-related horizon scanning for certain topics are carried out via agencies and/or expert groups (e.g. several experts groups have been set up to identify research needs within H2020, see also function 4). The JRC has a foresight unit and so does RTD. On a higher, more general level, the European Political Strategy Centre (former BEPA) coordinates the European Strategy and Policy Analysis System (ESPAS)33 which carries out major foresight exercises, but not dedicated to specific fields like biodiversity. Another major activity is the digital futures work carried out by DG CONNECT which hosts the Futurium foresight platform34. Foresight activities in the Commission are coordinated by the EC Foresight Network, initiated by the Chief Scientific Adviser in 2013, and which has currently 21 DGs participating.

The EPRS at the Parliament recently established a foresight unit. A network of foresight activities is being set up. On a much more specific level risk assessment procedures are used in different policy contexts that can also contribute to identifying new issues in need of policy attention.

Additional options via a support mechanism: A mechanism could provide a platform to bring together and/or synthesize different horizon scanning/foresight activities at different levels to allow for a more encompassing and pro-active approach (e.g. bees): from broad scientific consultation to engagement of civil society, or more targeted consultation with specific actors. It could regularly check for emerging knowledge needs relevant for existing policies, perform on-demand horizon scanning activities, but could also establish a regular process for broadly scanning for new upcoming biodiversity-related issues (e.g. through a specific horizon scanning format building on existing approaches). As an additional step, it could establish a working environment (e.g. via a group within the support mechanism), which regularly scans for early warnings on emerging issues (“observatory”). Thus, the contribution of scientists from outside the Commission and parliament context in flagging new and emerging issues to the attention of policy and its foresight activities could be strengthened.

Potential contributions from the science side via a Network of Knowledge: Knowledge holders/science are well placed to highlight emerging issues. They could come up with a list of emerging issue to submit to policy with an analysis of what may be at stake for each issue. Here a support mechanism could play an important role by transmitting the urgency of policy attention to the policy sphere.

33 http://europa.eu/espas/
34 http://ec.europa.eu/digital-agenda/futurium/

Summary report and recommendations, December 2014
Potential next steps from the policy side (Function 1):

Further strengthen joint foresight activities: Collaboration between existing activities in the Commission and other European bodies (e.g. in the Parliament via the EPRS) as well as in the Member States should be enhanced.

Make better use of scientific horizon scanning expertise and knowledge to feed into foresight activities and policy planning: In order to overcome the mismatch between policy-driven foresight and science-driven horizon scanning activities, a process should be put in place linking both approaches. This would contribute to the efficiency of existing activities and also actively inform policy making on emerging issues from science. Feeding into foresight activities and policy planning is linked to prerequisite 1 as it is unclear whom to address once issues for policy attention are identified and how to ensure they are addressed in a sufficiently broad approach.

Open questions include: How exactly a potential EU mechanism could support the existing/developing activities in this area, as foresight activities themselves are developing. What are relevant entry points for science and a support mechanism to bring issues identified to the attention of policy makers?

3.3.2 Function 2: Addressing short-term expertise needs

Rationale: This function refers to the needs by policy to identify and address experts or expertise on a topic within a short time frame. The emphasis in these cases is ensuring quick, yet sound scientific input rather than in-depth, reviewed state of the art (as done in function 3). An entry or contact point to a qualified expert within short time frames will be needed. Rapid reviews could be provided allowing quick scanning of available knowledge in a robust manner.

Existing options: Informal contacts with experts (also via ongoing research projects and their SPI work) play a crucial role in this context and will remain to do so. Existing institutions like the EEA and the JRC play an important role here. In the case of longer timeframes (weeks to months), consultancies might be involved to provide timely advice.

Additional options via an EU support mechanism: An EU support mechanism could provide an entry point for contacting appropriate experts via the Network of Knowledge (in an informal way), in addition it could help decide whether additional actions might be needed (e.g. broader studies in function 3).

Potential contributions from the science side via a Network of Knowledge: Knowledge holders / science could provide quick expertise in an ad-hoc process. A secretariat could identify relevant experts via links with established networks, where knowledge hubs could provide minimum feedback on relevant expertise that would not be left only to self-selection of experts. It could also provide a “standard procedure” for developing rapid high-quality reviews on available knowledge (see Annex 3, function 3). The rapid reviews would be conducted by scientists identified as experts for fees and would. The secretariat could organize peer-review to ensure quality.
Potential next steps from the policy side (Function 2):

**Strengthen informal advice:** Informal advice plays a crucial role in this function. Most often, these are based on the personal networks of individual policy makers. Yet, an overview on how this is used and how it could be improved is not available.

**Set up a single entry point for short term requests and identify ways to address it:** The secretariat of the NoK could help identify individual experts for informal advice. Policy would need to decide on how and by whom the NoK could be contacted.

**Mainstream the access to knowledge from EU-funded projects:** An instrument should be developed and maintained, that makes the (policy relevant) outcomes of EU-funded projects more easily accessible to decision making. This could be done, for example, by linking/ embedding policy-relevant information and outcomes in BISE.

**Open questions include:** How can the number of potential requests be controlled/ filtered, so that the capacity of an EU support mechanism is not overstretched? How could such a service be funded (e.g. framework contracts), and if so by whom (individual units, or DGs)?

### 3.3.3 Function 3: Providing consolidated views from science

**Rationale:** A key element of an SPI on environmental issues is to conduct coherent assessments that consolidate the existing knowledge in an accessible, credible and relevant way. Although often difficult (see example of GMOs), such assessments should strive to avoid scientific arguments being used selectively by different sides in a political debate (science advocacy). Assessments can be relevant at all stages in the policy cycle, e.g. for monitoring and early planning stages of policies. One area of particular interest could be to provide assessments for discussion during the trilogues (e.g. this could have been useful in the GMOs example). Consolidated views do not imply consensus, they would instead, as needed, include different views and interpretations of existing data, but be transparent about uncertainties, risks and potential differing views from a scientific perspective.

According activities could support or feed into the work of IPBES on the global level.

**Existing options:** A number of options exist to address this function. Agencies (e.g. EEA/ETCs, EFSA) and the JRC carry out assessments. Often, their knowledge is based on their yearly work programmes, which follow the needs voiced by the Commission and Member States. Complementary to this, Commission services regularly launch calls for tenders, which are most often dealt with by consultants. In fields with a broad knowledge base (e.g. case of IAS), this will yield high-quality and targeted results, but all these might be perceived as biased in contested issues (as seen in discussions around EEA and EFSA reports), as the development of the reports is not explicitly including different perspectives and experts. The Commission is currently developing a strategic interaction with the European science academy networks (EASAC, Euro-CASE, ALLEA, FEAM) aimed at enhancing the policy support delivered by academies. Other options are targeted projects supported by DG RTD in its framework programmes. Those projects sometimes actively support policy, but often with mixed results (see

---

35 For more detailed recommendations on this matter, see the outcomes of the according SPIRAL workshop: http://www.spiral-project.eu/sites/default/files/Recommendations_Spiral%20workshop_Oct2012_final.pdf
SPIRAL analysis of projects\textsuperscript{36}. In addition, the risk of mismatches between result availability and new policy development can be high (e.g. GRACE project on GMOs\textsuperscript{37}).

**Additional options via an EU support mechanism:** A mechanism would strengthen assessment processes by providing standard procedures, strictly applying scientific protocols and documenting all decisions, thus ensuring a high level of quality and transparency. A more ambitious approach would be the one developed by FP7 KNEU which includes different methodologies to answer requests, depending on their type and the available knowledge\textsuperscript{38}. To limit the workload, requesting rights might be restricted to certain policy bodies like the Commission. Any such assessment process should be accompanied by suitable communication activities and funding\textsuperscript{39} (see also function 5).

**Potential contributions from the science side via a Network of Knowledge:** Knowledge holders / science will bring expertise on the topics to be assessed and synthesized, as well as the methodologies needed to use to best synthesize the available knowledge on the topics\textsuperscript{40}.

<table>
<thead>
<tr>
<th>Potential next steps from the policy side (Function 3):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on the potential next steps outlined in prerequisites 1 and 2, the following additional next steps should be considered:</td>
</tr>
</tbody>
</table>

**Support the identification of relevant knowledge holders and stakeholders for assessment processes:** As outlined in prerequisite 2 for the scoping process, policy will have an important role in identifying relevant stakeholders (and knowledge holders) for assessment processes to help reducing perceived bias and support a broad involvement. It would thus support the steps for assessments, analysis, synthesis in function 3, including for example the agreement on methodological protocols and review procedures in line with the evidence need formulated.

**Ensure regular information and feedback from policy during an assessment process:** Policy will need to ensure that an assessment process is regularly reviewed by the policy side to avoid misunderstanding, ensure the policy relevance and check for timelines. This could be achieved by a regular mutual information exchange between groups, but also via dedicated experts from the policy side.

---

\textsuperscript{36} See http://www.grace-fp7.eu/content/grace-brief, project ending in November 2015
\textsuperscript{39} On funding see also Annex 5 for additional governance issues
\textsuperscript{40} See chapter 3.3 and Annex 3 in: KNEU team (2014): A recommended design for “BiodiversityKnowledge”, a Network of Knowledge to support decision making on biodiversity and ecosystem services in Europe.- online at: http://biodiversityknowledge.eu/images/PDF/WhitePaper_web.pdf
Establish “pilot” studies (e.g. impact of synthetic biology on biodiversity, nature-based solutions to societal challenges, invasive alien species) to further test procedures: As a starting point, policy should consider identifying “low-hanging” pilot topics, where the process for developing assessments could be tested further\(^\text{41}\) and identify a way to fund such pilot studies.

Open questions include: How could policy support protocol agreement and review processes (not necessarily all the same, e.g. review could and should probably involve more people and services than protocol agreement)? How could policy best support the inclusion of other sources of knowledge (stakeholder engagement)?

3.3.4 Function 4: Identifying biodiversity policy-relevant research knowledge needs and priorities to inform EU and Member States' research strategies

Rationale: This function addresses the need for research and innovation policy to regularly screen for and identify needs for new research. Firstly, many environment related questions arising from policy cannot be answered directly or sufficiently based on existing knowledge, but might need additional research. This may become obvious while conducting work on horizon scanning (function 1), addressing short-term expertise needs (function 2) or developing assessments (function 3). Secondly, regular scoping activities for research and innovation policy needs discussed and framed by policy in consultation with science supports the set-up of research programmes (e.g. for Horizon 2020).

Existing options: The EPBRS (European Platform for Biodiversity Research Strategy) has fulfilled this function with regard to research needs on biodiversity since 1999. EPBRS was supported mainly by funding from the EC (FP5 and FP6) and in some case directly from Member States. In recent years the work of the EPBRS has lacked a broad involvement especially from Eastern Europe due to lack of funding. Over the last few years, the ERA-Net BiodivERsA has also increased its role in strategic development of research funding in the area, and will continue in a new phase from 2015 onwards, launching jointly co-funded call with EC and including more partners and overseas territories thus making the link to national levels. Under the FP and Horizon 2020 programmes various tools exist to consult in a targeted or none comprehensive way the stakeholders. One, are the expert groups another are targeted or open consultations and e-consultations, call for ideas and calls for expression of interest. A recent expert group was set up in Horizon 2020 to advise DG RTD on specific topics (i.e. the Horizon 2020 Expert Group on “Nature-based Solutions and re-naturing cities”). This multidisciplinary expert group gathers fifteen experts with various expertise that engaged in workshops and conferences as well as through an e-consultation with more than 300 stakeholders to elaborate their recommendations. In addition, different organisations and institutions regularly identify research needs, e.g. the EASAC, ALTER-Net and others.

Additional options via an EU support mechanism: An EU support mechanism would offer a more systematic identification of research needs for policy development through synthesis or assessments of available knowledge conducted under functions 1-3. Through the continuous link with the other functions, a better matching of policy needs with according research will be fostered. By further developing the approach of the EPBRS with its delegates system (with two delegates per country, nominated in the past by the FP programme committee members of each EU Member State), by

\(^{41}\) Within the BiodiversityKnowledge project, three case studies to test procedures were carried out, see http://biodiversityknowledge.eu/documents?layout=edit&id=88
Improving the Science Policy Interface for Biodiversity and Ecosystem Services in Europe

proactively organising consultations and the development of recommendations for a research strategy, a support mechanism could ensure transparent and open processes and support not only the work of DG RTD, but also other funding bodies, networks (BiodivERsA ERA-Net) or programmes e.g. LIFE and other similar. On the international level, this work could be linked to the knowledge generation function of IPBES and the work of Future Earth and the Belmont Forum.

Potential contributions from the science side: Knowledge holders/ science will bring in expertise on the topics needed to be further researched, by analysing the gaps in current research. A Network of Knowledge could organize broad, open processes for example using e-consultations.42

Potential next steps from the policy side (Function 4):

Link with other functions: Activities in function 4 (knowledge needs and priorities) should be linked explicitly to activities in function 1 (Horizon scanning and foresight) and function 3 (consolidated views from sciences), to synchronise as much as possible the policy cycles with the knowledge production cycle. Dialogues should be fostered (with relevant Units in the policy DGs e.g. ENV, RTD, CLIMA, etc.) including via function 5 (Communication) to ensure optimum science-policy-society feedback loops on identified knowledge gaps.

Policy to decide on use of different channels: DG RTD and other relevant actors have different channels to receive input into their agenda development. The role of an EU support mechanism would need to be specified in this context: It could provide and facilitate open and transparent discussion processes for identifying policy needs and relevant stakeholders, but also for carefully working out essential needs based on current knowledge. This could be linked to or complement other activities (e.g. the work of expert groups), depending on the topic.

Build on the existing structures: A further development of function 4 should be a concerted interaction between various bodies and existing structures based on the experience and network of EPBRS (including its governance structure with national delegates). Institutional interactions and synergies with BiodivERsA are key and avoiding duplication of efforts with other relevant funding institutions or networks is essential depending on the topics addressed.

Open questions include: How can the research and innovation priorities best be aligned with R&I policy needs (e.g. link to knowledge needs on implementation of specific policies, knowledge needs to help inform the future review of legislation, research needs on the integration and/or mainstreaming of policies, collection of research gaps over time)?

42 Such e-consultations should be open and enable exchange, rather than one-way inputs. This could be done either by e-conferences (running several days to weeks), or by using new tools for rapid discussions/opinion polling like the Synthethron approach explored in November 2014 in the e-consultation of DG RTD and EPBRS on nature-based-solutions.
3.3.5 Function 5: Communication to inform public debate on complex issues

**Rationale:** Public debates, particularly on environmental issues, often cover only particular positions, and often lack a reflection of the broader issues at stake based on scientifically sound knowledge. An independent voice that engages in current discourses on a scientific basis, and tries to ensure that potential trade-offs, uncertainties and complexities are communicated adequately could help to broaden the debate. The bees case might serve as an example, where due to a lack of communication of consolidated knowledge and discourse, open questions and the wider context of the issue of pollinator decline, public discussions were dominated by partial scientific insights and according interest-related interpretations.

**Existing options:** The Commission makes all relevant documents, briefs, etc. on its work, including the reports of tender contracts available on the internet. These are sometimes complemented by specific communication activities, e.g. the campaign on biodiversity in 2010. In addition, strategic events are organised to discuss specific topics, often jointly with partners including EP Intergroups or EPBRS, ALTER-net, BiodivERsA 2/3 and other FP/Horizon 2020 research and innovation projects or via hearings and events at the parliament, the Committee of the Regions or other bodies. A major communication event in this respect is the yearly Green Week\(^{43}\) organised in Brussels and focusing on environment policy. Green Week offers a unique opportunity for debate and the exchange of experiences and best practices. Over the past fourteen years, the conference has established itself as a key event for anyone involved with protecting the environment and attracts thousands of participants from government, business and industry, non-governmental organisations, academia and the media. In addition, EU projects, research networks and advisory bodies regularly publish their work, but mostly via "standard" means of press releases and conferences, final stakeholder meetings of projects and similar activities taking into account that there are limits to open access to data and information. Many public debates in environmental policy, or other policies affecting the environment such as agricultural policy are, however, oversimplified, sometimes to a point of not communicating adequately the main issues and arguments.

**Additional options via an EU support mechanism:** The topics, procedures and outputs of an EU support mechanism would be communicated and discussed in ways tailored to relevant stakeholder groups. This includes dialogue-oriented interactions throughout the processes of developing products, starting with the scoping of topics. This would also the EU support mechanism to place its outputs in the wider context of policy options and discussions and foster legitimacy and relevance. The mechanism could thereby reach out to other groups not currently involved in discussions, and feedback their views to policy. A support mechanism would constitute another ‘voice’ independent from policy but sufficiently informed on policy relevance of the issues at stake that it could add specific information and be able to communicate uncertainties and assumptions on complex issues. In addition (see Annex 3, function 5), communication activities could be broadened, e.g. through dedicated dialogue-events (for example in the Parliament), by an active two-way communication during the whole process of knowledge integration in functions 1 to 4.

**Potential contributions from the science side:** Knowledge holders including science will provide knowledge through engagement in the other functions. This knowledge will be the basis for the work in function 5 by communication and policy experts. Also, scientific institutions and their outreach facilities

\(^{43}\) [http://ec.europa.eu/environment/greenweek/](http://ec.europa.eu/environment/greenweek/)
will be able to support the outreach and communication in cases where they have been involved in other functions.

**Potential next steps from the policy side** (Function 5):

**Jointly identify topics and appropriate activities:** Via an according internal exchange process (see prerequisite 1), policy should identify potential topics for according campaigns to better inform the public debate that could be developed by the mechanism.

This function could only be established if an EU support mechanism addressing other functions is established. This would also include the need to consider the availability of resources from e.g. the Work Package on Dissemination of FP7 and Horizon 2020 projects where relevant or separate funding for such communication activities, as they will tend to be resource intensive.

## 4 Synopsis and potential next steps for improving the science-policy-society interfaces for biodiversity and ecosystem services

### 4.1 Embedding biodiversity SPIs in the broader SPI landscape

The diversity of approaches for gathering and using knowledge and scientific evidence in policy processes at the EU level appears as a challenge for strengthening science-policy-society interactions. Our interviews, workshops and discussions have highlighted that discussions on an EU support mechanism on biodiversity and ecosystem services is linked to a wider discussion of, and broader needs for, improved science-policy-society interactions. Besides the fact that the topic itself needs cross-disciplinary and cross-sectoral engagement, it needs to be embedded in the broader evolution of the interfaces between science, policy and society in the EU. These include e.g. the further development of the European Parliament Research Service (EPRS), the European Political Strategy Centre - EPSC\(^44\) (former Bureau of European Policy Advisers - BEPA) of the European Commission, the role of Chief Scientist Units in different services of the Commission, DG RTD’s Horizon 2020 activities, as well as the roles of JRC and the different agencies. An example for the need to embed activities more broadly is the development of foresight activities across EU institutions (see chapter 3.4.1, function 1).

Over the last few years, not only has the science-policy-society interface landscape at EU level seen substantial changes, but the area of biodiversity and ecosystem services has been developing, with exchange processes between research and policy improving via specific projects and the increasing awareness of knowledge needs in policy. Priority Objective 5 of the 7\(^{th}\) Environmental Action Programme is to improve the knowledge and evidence base for EU environment policy. The increasing

---

\(^{44}\) The EPSC will provide professional and targeted advice to the President and it will be organised around six teams (composed by up to six members): an Economic Team, a Social Affairs Team, a Sustainable Development Team, a Foreign Affairs Team, an Institutional Team and an Outreach and Communication Team.
use of concepts such as ‘natural capital’, ‘green infrastructure’ and ‘nature-based solutions’ also in other policy areas has opened up opportunities and challenges for biodiversity and ecosystem services. In such a context, an EU support mechanism could further contribute to the development, promotion and application of the different initiatives, and collect knowledge from diverse disciplines and backgrounds for the design, implementation and evaluation of policies building on the concepts mentioned above. An EU Mechanism could also address the needs for knowledge arising from existing policies, e.g. in the context of the Invasive Alien Species regulation’s implementation, and the planned check of existing directives such as the Habitats and Birds Directive (see also chapter 2). At the international level, the establishment of IPBES and the start of its work programme will create knowledge needs from Europe, including a regional assessment of biodiversity and ecosystem services for Europe and Central Asia.

4.2 The role of an EU support mechanism – prerequisites and functions

In light of the broader picture outlined above and the analysis of the prerequisites and functions in Chapter 3, a dedicated EU support mechanism, strongly linked to and building on existing activities and mandates from policy, could complement current science-policy interface activities.

While all five functions discussed in this report are, in very different ways, addressed by existing institutions and processes (see Annex 3), a coherent approach across the functions is missing. Although an EU support mechanism will not in itself be sufficient to achieve such coherence, it would help fill existing gaps and thus strengthen and make existing processes more effective. Importantly, an EU support mechanism would allow for the opportunity to strengthen input into policy in all functions, not only by providing knowledge, but also by establishing a channel of interactions to flag relevant topics and future challenges in the field to policy.

4.3 Implementation options

The main challenges related to the policy side of an EU support mechanism are prerequisites 1 and 2 outlined above. The following options, which could be implemented in a step-wise approach, should be discussed to design and implement the ‘policy-side’ of an EU support mechanism:

a) Setting up an informal network across different potential user groups, based on the institutions and experts involved in the interviews and workshops (from Commission services/DGs, agencies, Member States, and European Parliament). Such a network could have regular exchanges on topics that an EU support mechanism should (or should not) potentially address.

b) A more formalised steering group, based on the informal group above and/or the ‘Group on Building the Environmental Knowledge Community’ (former Group of 4) could take over these tasks. Here, the screening and exchange on potential topics could happen more regularly and it should be ensured at least in the medium term that this group involves actors from outside the environmental/research policy area as well. This group could also more coherently address the needs at the science-policy interface in general, and from the mechanism more
specifically (e.g. for supporting the identification of stakeholders for different processes). Such a group should be linked explicitly to the science-side of the mechanism, e.g. via members on its Advisory Board\(^ {45}\); the way the steering group is set up should ensure the involvement of additional policy bodies into its processes as and when appropriate (e.g. linking up to Member States).

c) Setting up a ‘policy secretariat’ within policy institutions (dedicated task for one or several individuals, hosted by a DG or an agency) to ensure regular exchange with an EU support mechanism across all functions and ensure support not only for strategic issues (which could be done by the formal/informal networks outlined above), but also on a daily basis. This could strengthen the effectiveness of an EU support mechanism for functions 2 and 3 in improving the reaction time to short-term requests and improve policy communication of knowledge needs and outputs.

4.4 Potential next steps in 2015/2016

To move further in the improvement of science-policy-society interfaces on biodiversity and ecosystem services, the following potential activities have been identified:

a) Discuss and develop the contribution of an EU support mechanism and related developments for the implementation process of the 7\(^{th}\) EAP Action 5 and R&I policy e.g. through workshops and similar activities. The area of biodiversity and ecosystem services and nature-based solutions to societal challenges could become a ‘model area’ in this respect;

b) Identify within policy (as a ‘test’ for prerequisite 1 - Strengthen procedures for defining policy evidence-needs to be addressed by SPIs) one or two case-studies to conduct small-scale, guided work on a relevant topic for function 3 - Providing consolidated views from science (e.g. on the potential impacts of synthetic biology on biodiversity to inform the CBD process; Nature-based Solutions to Societal Challenges; IAS Directive implementation), and find ways to fund these case studies;

c) Discuss and develop a common knowledge repository for the policy relevant results of EU funded projects taking into account ongoing efforts and developments.

d) Organise workshops/ events to promote an EU support mechanism approach in the context of broader discussions on SPIs and strengthening the evidence base for policy, e.g. through:

   1. A conference in early 2016, jointly organised by different Commission services and other partners based on the results of the pilot studies (and linking up as appropriate with other events)

   2. Workshops at Green Week and other occasions as an early contribution to capacity building.

e) Create an electronic exchange group (via Yammer or similar social media system) to allow involved policy makers and others to informally exchange information over recent science-policy-society developments.

\(^ {45}\) For details of the potential governance structure of the science-side of a Mechanism see chapter 5 in: KNEU team (2014): A recommended design for “BiodiversityKnowledge”, a Network of Knowledge to support decision making on biodiversity and ecosystem services in Europe. - online at: http://biodiversityknowledge.eu/images/PDF/WhitePaper_web.pdf
f) Implement, the first phase for an EU mechanism interfacing science and policy on biodiversity and ecosystem services by providing knowledge support to Environment and R&I policies via the Coordination & Support Action-Call in H2020 (call deadline April 2015; likely project start early 2016. To strengthen the interaction with policy, an early High-Level workshop and launch event under the auspices of the EU Presidency of the Council of European Union should be planned within the successful project in 2016.
5 Annexes

Annex 1: The Policy Cycle, Stakeholders, Evidence provision.

Figure A1 presents an illustrative schematic around which the cases were constructed - identifying where, which stakeholder (i.e. see the grey boxes in the figure), contributed what type of information (i.e. green boxes), in what form or via what process (i.e. orange boxes), at what stage of the policy cycle (i.e. the blue boxes).

The current SPI makes significant use of studies – scoping studies, cost studies, studies on costs and benefits of policy options – each data collection and analysis tools that feed into the Commission’s impact assessment process that becomes a key focal point for the formal SPI. Furthermore, external consultation processes and inter-service consultations contribute to wider science inputs and wider policy and stakeholder perspective on key policy questions. At the triilogue stages, public hearings and Committee deliberations, informed in turn by expert advice and stakeholder inputs, help inform the negotiations. While there is a broadly common process (the “Community Method”), there are significant variations between each policy initiative and associated SPI. For this reason, the study looked at SPI practice for a range of policy initiatives and policy issues. Figure 2 presents a short synthesis of key results, complemented by Annex 1, and key insights are presented further below.

Figure A1: The EU Environmental Policy Cycle and Science Interface - including stakeholder roles and type of interface processes/products.
**Annex 2: Lessons learned from case studies**

Table A1: Lessons learned on functions prerequisites (and potential building blocks) from cases and from the focus groups.

<table>
<thead>
<tr>
<th>Functions/Prerequisites</th>
<th>Lesson learned</th>
<th>Strengths, Weaknesses of current SPI Needs for future SPIs</th>
<th>Policy cycle step where lesson and/or need relates to</th>
<th>Source of lesson or need: Specific case study or focus group</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1, F3</td>
<td>Strengthening of precautionary principle due to obvious lacks in knowledge</td>
<td>+</td>
<td>Policy options</td>
<td>Bees</td>
</tr>
<tr>
<td>F1, P2</td>
<td>Broad scoping and definition finding might help with early warning topics</td>
<td>-</td>
<td>Screening and identification</td>
<td>SB</td>
</tr>
<tr>
<td>F1-5</td>
<td>An EU mechanism is in need for a broad acceptance beyond DG RTD and ENV to offer full added-value</td>
<td>N</td>
<td>All steps</td>
<td>All, MAES</td>
</tr>
<tr>
<td>F1-5, P2</td>
<td>An EU mechanism to improve SPI should operate across the whole policy cycle, not just ex ante (--scoping)</td>
<td>N</td>
<td>All</td>
<td>GMO, MAES</td>
</tr>
<tr>
<td>F1-5, P2</td>
<td>Message carried by a process might be more important than the actual work done in the process</td>
<td></td>
<td></td>
<td>MAES</td>
</tr>
<tr>
<td>F2</td>
<td>Call for tenders for specific input can serve the knowledge needs well, if the underlying knowledge base is sufficient (e.g. via earlier research projects)</td>
<td>+</td>
<td>Issue identification, policy options</td>
<td>IAS</td>
</tr>
<tr>
<td>F2</td>
<td>Tender contract to help gain overviews of options (e.g. Climate-Adapt)</td>
<td>+/- (result?)</td>
<td>Identification and options</td>
<td>EBA, IAS</td>
</tr>
<tr>
<td>F2</td>
<td>In consolidated fields of knowledge and legislation (e.g. N-Emissions), knowledge input might be more streamlined already</td>
<td>+</td>
<td>Policy improvement</td>
<td>Eutro</td>
</tr>
<tr>
<td>F2, F3, P2, P3</td>
<td>Broad engagement of DGs, MS and other players seemed to support developments</td>
<td>+</td>
<td>Policy improvement</td>
<td>Eutro, MAES?</td>
</tr>
<tr>
<td>F3</td>
<td>Transdisciplinary expert group (AHEWG) developing documents</td>
<td>+</td>
<td>Identification and options</td>
<td>EBA</td>
</tr>
<tr>
<td>F3</td>
<td>Full NoK process or other approaches could improve a better coverage of</td>
<td>N</td>
<td></td>
<td>MAES?</td>
</tr>
<tr>
<td>F3, F4</td>
<td>Lack of longer term arrangement for updating data and knowledge and keeping the evidence resource up to date and operational</td>
<td>-</td>
<td>Monitoring and others</td>
<td>IAS</td>
</tr>
<tr>
<td>F3, F5</td>
<td>The role of EFSA on GMOs and other topics is well established, but has also sometimes been contested due to an arguably “narrow focus” of the analysis</td>
<td>+/-</td>
<td>Policy options and implementation</td>
<td>GMO</td>
</tr>
<tr>
<td>F3, F4</td>
<td>Clear and transparent information on current funding opportunities for financing research needed in the process</td>
<td>N</td>
<td>Identification, framing</td>
<td>MAES</td>
</tr>
<tr>
<td>F3, F5</td>
<td>Producing policy briefs is important – e.g. two page documents synthesising issues (i.e. FAQs), positions, or evidence</td>
<td>N</td>
<td>Decision making</td>
<td>Focus groups + WS year 2</td>
</tr>
<tr>
<td>F3, F5</td>
<td>There is a clear need in providing more balanced pictures on contested issues; no balanced pictures make it difficult to opt clearly for policy options</td>
<td>N</td>
<td>Policy options</td>
<td>GMO, MAES</td>
</tr>
<tr>
<td>F3, F5 (gov)</td>
<td>Promoting the clear added values of processes in addition to have clear guidelines on how to get started might greatly help to counterbalance the lack of time and money to get involved</td>
<td>N</td>
<td>Implementation</td>
<td>MAES</td>
</tr>
<tr>
<td>F4, F1</td>
<td>Mutual driving force between policy needs and research to be conducted is important (“two-sided horizon scanning”) Proactive horizon scanning needed (for new IAS risks)</td>
<td>+/-</td>
<td>Issue identification and framing; implementation and monitoring</td>
<td>IAS</td>
</tr>
<tr>
<td>F5</td>
<td>Difficulties in engaging scientists in highly politicized debates like neonicotinoids (pesticide)</td>
<td>-</td>
<td>All levels</td>
<td>Bees</td>
</tr>
<tr>
<td>F5</td>
<td>EFSAs role in the bee case criticized as not perceived as neutral</td>
<td>-</td>
<td>Framing, options, risk assessments</td>
<td>Bees</td>
</tr>
<tr>
<td>F5</td>
<td>SPI/ chief scientist of EP to speak out and flag problems and stand for the wider public</td>
<td>N</td>
<td>Options and negotiations</td>
<td>Biofuel</td>
</tr>
<tr>
<td>F5</td>
<td>Hearings at EP with experts help to deepen understanding of a topic in parliament and in the wider public (via stakeholders or directly if open to the wider public)</td>
<td>+</td>
<td>Decision making</td>
<td>IAS</td>
</tr>
<tr>
<td>F5</td>
<td>Active and broad communication of processes not available</td>
<td>-</td>
<td>Identification, policy options etc.</td>
<td>Bees, MAES (“Selling kit”)</td>
</tr>
<tr>
<td>F5</td>
<td>High transparency needed</td>
<td>N</td>
<td>Identification and options</td>
<td>GMO, Biofuels</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------</td>
<td>---</td>
<td>-----------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>F5</td>
<td>Broad “debunking the myths” briefs on contested issues (possible?)</td>
<td>N</td>
<td>Options and negotiations</td>
<td>Biofuels</td>
</tr>
<tr>
<td>F5</td>
<td>Public hearings at EP might be dominated by private sector interests</td>
<td>-</td>
<td>All steps</td>
<td>EBA</td>
</tr>
<tr>
<td>F5</td>
<td>There is a need in ensuring that a topic is kept on the screen</td>
<td>+</td>
<td>Policy improvement</td>
<td>Eutro</td>
</tr>
<tr>
<td>F5</td>
<td>Broad public engagement might improve the support and uptake of new legislations (?)</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F5</td>
<td>Organisation of events essential to update and engage MS in the process</td>
<td>+/-</td>
<td>Scoping and implementation</td>
<td>MAES</td>
</tr>
<tr>
<td>F5, P1</td>
<td>Communication between sectors is essential to incorporate biodiversity issue in all relevant sectors</td>
<td>+/-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td>Improve collaboration between JRC, EEA, ESTAT and others</td>
<td>N</td>
<td>Data provision across all steps, particularly for issues identification and framing, policy assessment and review</td>
<td>Focus groups + WS year 2</td>
</tr>
<tr>
<td>P1</td>
<td>Dedicated expert group of COM and MS can steer a policy process well (and integrate knowledge)</td>
<td>+</td>
<td>Options and design</td>
<td>IAS, MAES?</td>
</tr>
<tr>
<td>P1</td>
<td>Engagement of different DGs can be difficult in practice – Inter-service groups needed to discuss across policy sectors</td>
<td>-</td>
<td>Whole cycle</td>
<td>IAS, EBA, MAES</td>
</tr>
<tr>
<td>P1</td>
<td>Need for policy adjustments (SEA) and for much more inter-service work in MS</td>
<td></td>
<td></td>
<td>Focus groups</td>
</tr>
<tr>
<td>P1, F2, F3</td>
<td>Danger that topics are blocked/ ended after their launch in a process (e.g. in EU mech.) due to changed policy views and priorities</td>
<td>-</td>
<td>All steps</td>
<td>EBA, NBS, IAS, SB</td>
</tr>
<tr>
<td>P1, F4</td>
<td>Funding agencies seemed to have a role to play (e.g. ERA-NET: ERASynBio)</td>
<td>N</td>
<td>Screening and identification</td>
<td>SB</td>
</tr>
<tr>
<td>P1, P2</td>
<td>More scoping work is needed at EU-level on how to mobilise existing reporting schemes in environment and other policy sectors</td>
<td>N</td>
<td>Reporting stage</td>
<td>Focus groups</td>
</tr>
<tr>
<td>P1, P2</td>
<td>The key to success of any process is the policy relevance and that other policy sectors need to be convinced of the relevance – this underlines the need to frame the research questions to align with policy needs and adopt compatible discourse across DGs to facilitate buy-in</td>
<td>N</td>
<td>Framing, options development and assessment</td>
<td>MAES (Francois)</td>
</tr>
<tr>
<td>P1, P2</td>
<td>Dynamic interaction is needed between top-down and bottom-up approaches to SPI</td>
<td>N</td>
<td></td>
<td>MAES</td>
</tr>
<tr>
<td>P1, P2</td>
<td>Clear framing of problem missing and thus different views/ activities/ results developing</td>
<td>-</td>
<td>Identification, policy options etc.</td>
<td>Bees</td>
</tr>
<tr>
<td>P1, P2</td>
<td>EU Mechanism to support and ensure better framing</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1, P2</td>
<td>Mixture of concepts in policy (EBA, green infrastructure, nature-based solutions) and interests on them might lead to inconsistencies and ineffective developments/ operationalization</td>
<td>-</td>
<td>Identification of topics</td>
<td>EBA</td>
</tr>
<tr>
<td>P1, P2</td>
<td>There is a need to better support conceptualisation</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1, P2</td>
<td>Or to identify research needs to fill gaps in knowledge and new policy “solutions”</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1, P2</td>
<td>Lack of knowledge on terminology and different aspects of a topic</td>
<td>N</td>
<td>Identification, framing and options</td>
<td>Biofuel, MAES</td>
</tr>
<tr>
<td>P2</td>
<td>Generally a clear definition of which knowledge and evidence is used is missing, creating a danger of biased advice. A perceived “credible” synthesis is needed: via strict process, including different knowledge forms as needed</td>
<td>-</td>
<td>Identification, policy options etc.</td>
<td>Bees, MAES</td>
</tr>
<tr>
<td>P2, F1, F3</td>
<td>Lack of early assessments in case of biofuel debate</td>
<td>-</td>
<td>Options</td>
<td>Biofuel</td>
</tr>
<tr>
<td>P2, P3 F3</td>
<td>Need for a process to pool experts on a new topic Q: Role for STOA?</td>
<td>N</td>
<td>Arguably all stages – from Issues identification to implementation</td>
<td>Biofuels, Synthetic Biology, …</td>
</tr>
<tr>
<td>P3, F1-5</td>
<td>The exchange and share of knowledge experience and expertise in processes were considered essential and would require further development and promotion of existing mechanisms/initiatives (e.g. BISE, NoK, EPBRS, Eye on Earth, OPERA/OpenNESS platform)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3, F3</td>
<td>Collect lessons learned from countries. MS should have an easy access to information (case studies) (through website?)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**P3**

| Well-established expert networks can significantly support SPIs as comprehensive advisory networks (based also on earlier international processes), but, there are risks of insufficient institutional engagement that lead to networks weakening. |  | Issues identification, policy options, design, deliberations + Negotiations stage + Implementation | IAS |

| Link to resources such as available tools to support the process | N | All | MAES |

| Capacity building for EPs and other decision makers on new and emerging issue Role for STOA? | N | all | Biofuels, SB, … |

| Transparency regarding interests behind knowledge/ institutions | N | all | GMO Biofuels |

| The exchange and share of knowledge experience and expertise in processes were considered essential and would require further development and promotion of existing mechanisms/initiatives (e.g. BISE, NoK, EPBRS, Eye on Earth, OPERA/OpenNESS platform) | +/- |  | MAES, Focus groups |

| Collect lessons learned from countries. MS should have an easy access to information (case studies) (through website?) | N |  | MAES |
Annex 3: Potential Building Blocks

Table A2: Improving the Science policy interface for biodiversity – potential Building Blocks: options to fine-tune.

<table>
<thead>
<tr>
<th>No</th>
<th>Prerequisites</th>
<th>Existing options (Ex) (no specific order) (&amp; potential improvements for them)</th>
<th>Additional/New options via an EU mechanism (with increasing ambition from left to right) (Nx)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1P Strengthen procedures for defining policy evidence-needs</td>
<td>Inter-Service Group consultations</td>
<td>Working groups of the council</td>
<td>Processes in the context of the triologue</td>
</tr>
<tr>
<td>2P Support for scoping of topics for policy attention</td>
<td>EU services to coordinate issues scoping, often supported by agencies and other bodies (e.g. EEA, ETCs, JRC...)</td>
<td>In addition, consultation with EU+MS groups (CIF etc.) and selected experts</td>
<td>Support by call for tenders for scoping often used – opportunities for further applications /ensure wide and integrate multiple DG perspectives</td>
</tr>
<tr>
<td>3P Networking and capacity building for SPI activities</td>
<td>In science: Self-support of community via networks like ALTER-Net and their capacity building activities</td>
<td>SPI processes in EU projects (and other occasions) for mutual learning (e.g. Stakeholder Boards, joint conferences)</td>
<td>Via policy: conferences and workshops that support linking up between science and policy (occasion and needs</td>
</tr>
<tr>
<td>Functions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>F1</strong> Horizons scanning</td>
<td>One-off activities by existing institutions (e.g. <em>Late lessons for early warnings</em> by the EEA)</td>
<td>Done by specifically invited expert groups (e.g. in H2020, the JHEB group)</td>
<td>Call for tender for performance of specific scanning activities (existing?) and/or horizon scanning elements in policy contracts</td>
</tr>
<tr>
<td><strong>F2</strong> Addressing short-term expertise needs</td>
<td>Advice roles of existing institutions (agencies, JRC, ETCs etc.) and their sub-units and committees</td>
<td>Use of regular DG ENV (and others) tender calls (if knowledge is broadly consolidated)</td>
<td>Via DG RTD framework programme projects with dedicated SPI activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>Providing consolidated views from science</td>
<td>According to work streams/tasks carried out by JRC or EEA</td>
<td>In-depth consultancy work (e.g. via systematic reviews)</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>F4</td>
<td>Identifying biodiversity policy relevant research needs and priorities to inform the EU Research strategy</td>
<td>EPBRS already exists</td>
<td>H2020 expert groups exist for some areas; others could be added</td>
</tr>
<tr>
<td>F5</td>
<td>Communicating to inform public debate on complex issues</td>
<td>Regular outputs of commission services: reports workshops, conferences, briefs, leaflets, speeches and press releases e.g. Greenweek, Eurobarometer results etc.</td>
<td>Strategic events by COM (and partners, e.g. Intergroup at the EP; EPBRS)</td>
</tr>
</tbody>
</table>
Annex 4: Cases selected - short description and rationale for their selection

**Invasive alien species (IAS).** EU legislation was adopted in September 2014 to address this driver of biodiversity loss, which also impacts on the economy and health. The case study was selected to focus on: (a) the impact assessment process itself and how (and the extent to which) scientific knowledge contributed to a robust IA that facilitated the development and acceptance of a legislative proposal by the Commission services; and (b) The implementation needs for the regulation.

**Bees and Neonicotinoids:** This issue is important as it was a fast emerging issue of major importance to biodiversity in an area of important stakeholder interests which makes scientific knowledge a key requirement for policy progress. It is also attractive as a case as it links to food and agriculture and therefore concerns several Commission services.

**Eutrophication:** This issue is important as there are major impacts on biodiversity, in terrestrial as well as freshwater and coastal systems. The issue of liability remains challenging as does motivation to address the problem. Also, the topic links biodiversity issues with those from water, agriculture and air pollution. It thus cuts across different themes in policy making and science alike. On the science side a major step was taken in 2011 with the release of the European Nitrogen Assessment (ENA), the main challenge on the policy side is to take an integrated approach building on the many components that already exist but in isolation have failed to address the problem exhaustively.

**Ecosystem-based adaptation to Climate Change:** While there is a lot of rhetorical interest in ecosystem-based adaptation to climate change at the local to global level, in practice there is less known on what actually works in practice and little practical commitment to action. This case is helpful as it links climate-biodiversity, further links to relevant issues like Green Infrastructure and restoration as well as offering a global perspective – i.e. UNFCCC-CBD link.

Further discussions with DG ENV and RTD have highlighted that the issues of the potential impacts on biodiversity of **synthetic biology, GMOs,** and **biofuels,** are also interesting cases to look at. The two latter look at both insights from the past (as policies and measures have been put into place) and insights for the future (as both are still live policy areas). Synthetic biology is a new issue which, like GMOs, has the potential to divide public opinion very early in the developing policy debate.
Annex 5: Further cross-cutting governance tasks

Besides the governance issues for knowledge holders and policy outlined for the prerequisites and functions above, several cross-cutting tasks have to be addressed in the design of a support mechanism.

- **Funding activities**: The funding rules of the EU Commission set strict guidelines today on how evidence gathering can be supported that will need specific resources. The standard procedures are competitive calls, either for contracts (via. DG ENV and others), or via the means and tools of the Horizon2020 programme. It seems difficult to attach funding explicitly to a certain mechanism and thus recipient. An option could be via developing a certain framework contract option. Funding to a support mechanism could accordingly either come directly from one major “donor”, but there is no clear model for this at the moment in the EU context. Another option is to work with a core funding from specific institutions (e.g. from the science side) and conduct the work with funding on a case by case basis.

- **Need for multiple channels to access evidence**, choice of channel becomes an important decision. Importance to ensure buy-in and agreement on the issues involved in a topic before commissioning expertise. Question: new structures, or just different procedures? Who is in a position to coordinate, ensure issues are dealt with sufficiently broadly? Role of chief scientific advisor(s)? (should not be the only option). To ensure legitimacy and relevance, policy steering and governance needs to complement the scientific one (Prerequisites 1 and 2).

- **Stakeholder & society involvement**: In many of the support mechanism’s processes, not only in the communication function (Function 7), addressing and engaging stakeholders and even the broader society will be crucial to achieve relevance and legitimacy. Nonetheless, stakeholder engagement has to be carefully developed on a case by case basis for each task carried out in the functions, in order to balance the need for a broad and balanced engagement and the risk of “watering down” framing and assessments processes and avoiding contentious issues in order to reach consensus for a very broad set of stakeholders. Accordingly, arranging the stakeholder processes will be key for the daily business of the mechanism, between the scientific governance and the policy governance. The challenge is, how to organise the process so that issues become apparent but an agreement on what needs to be assessed can still be achieved?

- **Daily business coordination**: A support mechanism, with its different functions, will need a daily business coordination structure that ensures communication between policy actors and knowledge holders and arrange the different tasks carried out under the functions. This might also include financial and other administrative issues. The coordination could be carried out by a central office, or distributed between different organisations, e.g. taking care of different functions or tasks related more to policy or knowledge holder oriented activities. A centralized approach will ensure a high level of interactions between functions and make it easier that experiences stay within the mechanism, while a decentralized approach might open up the chance for more in-kind contributions and the focus for specific functions by specialized partners.

- **Independent evaluation of processes, ethics control**: Credibility, legitimacy and relevance of the processes in the support mechanism need to be ensured and balanced with each other. This includes, dealing with issues like conflicts of interest, opposing and contradicting views, risks and uncertainties of results. To achieve the sensitive balance outlined above, independent evaluation of the processes and procedures within the mechanism are envisaged. A proposal developed in the White Paper is to have 1. Guiding principles and clear code of conduct/code of ethics, 2. Formative evaluation that closely accompanies the set-up of a mechanism (or its science part) and alerts as well as constructively proposes solutions to potential shortfalls from principles and codes, 3. An independent external evaluation of the usefulness of the mechanism on a regular basis (e.g. every 3-5 years), involving different stakeholders.
Annex 6: Examples of potentially relevant bodies/institutions for interacting with an EU support mechanism (indicated in bold) and glossary of acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN function</td>
<td>Answering-Decision-making-Needs function. One of the four potential functions at the science-policy interface in Europe and identified by the work of KNEU</td>
</tr>
<tr>
<td>AHEWG</td>
<td>Ad-hoc Expert Working Group</td>
</tr>
<tr>
<td>ALTER-Net</td>
<td>Europe's biodiversity research network - A Long-Term Biodiversity, Ecosystem and Awareness Research Network, Network of Excellence FP6 (<a href="http://www.alter-net.info">www.alter-net.info</a>)</td>
</tr>
<tr>
<td>BiodiversityKnowledge</td>
<td>A proposal by the KNEU project (see below) to organize a network of networks able to respond to policy questions.</td>
</tr>
<tr>
<td>BEPA</td>
<td>Bureau of European Policy Advisers (ec.europa.eu/bepa), being replaced by the European Political Strategy Centre under the 2015 Commission.</td>
</tr>
<tr>
<td>BiodivERsA</td>
<td>Network of 21 research-funding agencies across 15 European countries. It is a second-generation ERA-Net, funded under the EU's 7th Framework Programme for Research. (<a href="http://www.biodiversa.org">www.biodiversa.org</a>)</td>
</tr>
<tr>
<td>Biofuels</td>
<td>refers to the case study on biofuels</td>
</tr>
<tr>
<td>BISE</td>
<td>Biodiversity Information System for Europe</td>
</tr>
<tr>
<td>CAP</td>
<td>Common Agricultural Policy</td>
</tr>
<tr>
<td>CBD</td>
<td>Convention on Biological Diversity</td>
</tr>
<tr>
<td>CFP</td>
<td>Common Fisheries Policy</td>
</tr>
<tr>
<td>CGBN</td>
<td>Coordination Group for Biodiversity and Nature Conservation</td>
</tr>
<tr>
<td>CIF</td>
<td>Common Implementation Framework (the governance structure to underpin the effective delivery of the EU 2020 Biodiversity Strategy) (<a href="http://biodiversity.europa.eu/policy/1eu-biodiv-strategy-cif.pdf">http://biodiversity.europa.eu/policy/1eu-biodiv-strategy-cif.pdf</a>)</td>
</tr>
<tr>
<td>CIS</td>
<td>Common Implementation Strategy (the governance structure to underpin the effective delivery of the Water Framework Directive and of the Marine Strategy Framework Directive)</td>
</tr>
<tr>
<td>Cohesion Policy</td>
<td>The fundamental objective of the EU cohesion policy is to strengthen economic and social solidarity in the Community, ensure the harmonized development of the overall Community and close the development gap of less-favoured regions.</td>
</tr>
<tr>
<td>CSA</td>
<td>Chief Science Advisor (to the president of the European Commission), function discontinued under the new Commission (status December 2014).</td>
</tr>
<tr>
<td>DAISIE</td>
<td>EU project on “Delivering Alien Invasive Species In Europe”, FP6 (<a href="http://www.europe-aliens.org/">http://www.europe-aliens.org/</a>)</td>
</tr>
<tr>
<td>DG</td>
<td>Directorate General of the European Commission</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>DG Agri</td>
<td>Directorate General for Agriculture and Rural Development</td>
</tr>
<tr>
<td>DG Env</td>
<td>Directorate General for the Environment</td>
</tr>
<tr>
<td>DG Regio</td>
<td>Directorate General for Regional and Urban Policy</td>
</tr>
<tr>
<td>DG Research / DG RTD</td>
<td>Directorate General for Research and Innovation</td>
</tr>
<tr>
<td>EAP</td>
<td>Environmental Action Programme</td>
</tr>
<tr>
<td>EASAC</td>
<td>European Academies Science Advisory Councils</td>
</tr>
<tr>
<td>EBA</td>
<td>refers to the case study on Ecosystem Based adaptation</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission (ec.europa.eu)</td>
</tr>
<tr>
<td>EDC</td>
<td>European Environmental Data Centres</td>
</tr>
<tr>
<td>EEA</td>
<td>European Environmental Agency (eea.europa.eu)</td>
</tr>
<tr>
<td>EFP</td>
<td>European Foresight Platform (<a href="http://www.foresight-platform.eu/">http://www.foresight-platform.eu/</a>)</td>
</tr>
<tr>
<td>EIP</td>
<td>European Innovation Partnerships (<a href="http://www.atenekom.eu/en/topics/funding/eu-programs/european-innovation-partnerships-eips/">http://www.atenekom.eu/en/topics/funding/eu-programs/european-innovation-partnerships-eips/</a>)</td>
</tr>
<tr>
<td>EIT</td>
<td>European Institute of Innovation and Technology (<a href="http://europa.eu/about-eu/agencies/index_en.htm">http://europa.eu/about-eu/agencies/index_en.htm</a>)</td>
</tr>
<tr>
<td>EP</td>
<td>European Parliament</td>
</tr>
<tr>
<td>EPBRS</td>
<td>European Platform on Biodiversity Research Strategy (<a href="http://www.epbhrs.org">www.epbhrs.org</a>)</td>
</tr>
<tr>
<td>EPSC</td>
<td>European Political Strategy Centre</td>
</tr>
<tr>
<td>ERA</td>
<td>European Research Area (<a href="http://ec.europa.eu/research/era/index_en.htm">http://ec.europa.eu/research/era/index_en.htm</a>)</td>
</tr>
<tr>
<td>ERAB</td>
<td>European Research Area Board</td>
</tr>
<tr>
<td>EUROSTAT (DG ESTAT)</td>
<td>is the statistical office of the European Union situated in Luxembourg. Its task is to provide the European Union with statistics at European level that enable comparisons between countries and regions (<a href="http://epp.eurostat.ec.europa.eu">http://epp.eurostat.ec.europa.eu</a>)</td>
</tr>
<tr>
<td>Eutro</td>
<td>refers to the case study on eutrophication</td>
</tr>
<tr>
<td>FP6/7</td>
<td>Sixth or Seventh Framework Programme of the European Union for the funding of research and technological development in Europe</td>
</tr>
<tr>
<td>GI</td>
<td>Green Infrastructure</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>GMO</td>
<td>Genetically Modified Organism. Can also refer to the case study on Genetically Modified Organisms</td>
</tr>
<tr>
<td>IA</td>
<td>Impact Assessment</td>
</tr>
<tr>
<td>IAS</td>
<td>refers to the case study on Invasive Alien Species</td>
</tr>
<tr>
<td>IC function</td>
<td>International Collaboration function. One of the four potential functions at the science-policy interface in Europe and identified by the work of KNEU</td>
</tr>
<tr>
<td>ICES</td>
<td>The International Council for the exploration of the Sea (<a href="http://www.ices.dk">http://www.ices.dk</a>)</td>
</tr>
<tr>
<td>Intergroups</td>
<td>Intergroups are formed of Members of the European Parliament from any political group and any committee, with the aim to hold informal exchanges of views on particular subjects and promoting contact between Members and civil society. Intergroups are not Parliament bodies. (<a href="http://www.europarl.europa.eu/aboutparliament/en/00c9d93c87/Intergroups.html">http://www.europarl.europa.eu/aboutparliament/en/00c9d93c87/Intergroups.html</a>)</td>
</tr>
<tr>
<td>IPBES</td>
<td>Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (<a href="http://www.ipbes.net">www.ipbes.net</a>)</td>
</tr>
<tr>
<td>ISG</td>
<td>Inter-service groups (involving all services within the Commission affected by or concerned with a policy issue)</td>
</tr>
<tr>
<td>IUCN ISSG</td>
<td>International Union for Conservation of Nature – Invasive Species Specialist Group</td>
</tr>
<tr>
<td>JRC</td>
<td>Joint Research Centre (<a href="http://ec.europa.eu/dgs/jrc">ec.europa.eu/dgs/jrc</a>)</td>
</tr>
<tr>
<td>KNEU</td>
<td>EU project on “Developing a Knowledge Network for European expertise on biodiversity and ecosystem services to inform policy making economic sectors”, FP7, promoted via the Biodiversity Knowlegde name</td>
</tr>
<tr>
<td>MAES</td>
<td>Mapping and Assessment of the state of Ecosystem and Services (Target 2, action 5 of the EU 2020 Biodiversity strategy)</td>
</tr>
<tr>
<td>MEP</td>
<td>Member of the European Parliament</td>
</tr>
<tr>
<td>MS</td>
<td>Member State</td>
</tr>
<tr>
<td>NBS</td>
<td>refers to the case study on nature-based solutions</td>
</tr>
<tr>
<td>NET function</td>
<td>Networking and capacity building function. One of the four potential functions at the science-policy interface in Europe and identified by the work of KNEU</td>
</tr>
<tr>
<td>NOBANIS</td>
<td>European Network on Invasive Alien Species is a gateway to information on alien and invasive species in North and Central Europe. (<a href="http://www.nobanis.org/">http://www.nobanis.org/</a>)</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>NoK</td>
<td>Network of Knowledge (<a href="http://www.biodiversityknowledge.eu">www.biodiversityknowledge.eu</a>)</td>
</tr>
<tr>
<td>OpenNESS</td>
<td>EU project on “Operationalisation of natural capital and ecosystem services”, FP7 (<a href="http://www.openness-project.eu">www.openness-project.eu</a>)</td>
</tr>
<tr>
<td>OPERAs</td>
<td>EU project on “Operational Potential of Ecosystem Research Applications”, FP7 (<a href="http://www.operas-project.eu">www.operas-project.eu</a>)</td>
</tr>
<tr>
<td>OPPLA</td>
<td>The EU projects OpenNESS and OPERAs are working closely on developing a common platform, called OPPLA, which will bring together all the knowledge, tools and services from both projects in support of parties that want to turn ecosystem services and natural capital into action.</td>
</tr>
<tr>
<td>REFIT</td>
<td>is the European Commission's Regulatory Fitness and Performance programme. Action is taken to make EU law simpler and to reduce regulatory costs, thus contributing to a clear, stable and predictable regulatory framework supporting growth and jobs. To do this successfully, REFIT requires a joint effort between the European Commission, the European Council, the European Parliament, Member States and stakeholders. (<a href="http://ec.europa.eu/smart-regulation/refit/index_en.htm">http://ec.europa.eu/smart-regulation/refit/index_en.htm</a>)</td>
</tr>
<tr>
<td>RS function</td>
<td>Research Strategy function. One of the four potential functions at the science-policy interface in Europe and identified by the work of KNEU</td>
</tr>
<tr>
<td>SEA</td>
<td>Strategic Environmental Assessment. (<a href="http://ec.europa.eu/environment/eia/sea-legalcontext.htm">http://ec.europa.eu/environment/eia/sea-legalcontext.htm</a>)</td>
</tr>
<tr>
<td>SPI</td>
<td>Science Policy Interface</td>
</tr>
<tr>
<td>SPIRAL</td>
<td>EU project on “science-policy interfaces for Biodiversity Research, Action, and Learning”, FP7</td>
</tr>
<tr>
<td>STOA</td>
<td>Science and Technology Options Assessment of the European Parliament (<a href="http://www.europarl.europa.eu/stoa/cms/cache/offonce/home/about;jsessionid=3E3DB24428EED040B62BAD911DFC89FC">http://www.europarl.europa.eu/stoa/cms/cache/offonce/home/about;jsessionid=3E3DB24428EED040B62BAD911DFC89FC</a>)</td>
</tr>
<tr>
<td>Trilogue / Trialogue (FR)</td>
<td>Informal tripartite meetings attended by representatives of the European Parliament, the Council and the Commission. The purpose of these contacts is to get agreement on a package of amendments acceptable to the Council and the European Parliament. <a href="http://ec.europa.eu/codecision/stepbystep/glossary_en.htm">http://ec.europa.eu/codecision/stepbystep/glossary_en.htm</a></td>
</tr>
</tbody>
</table>
Annex 7: Potential topics for pilot testing suggested by participants to the workshop on November 7th, 2014

- Potential impact of synthetic biology on biodiversity
- Further process on implementation of the EU Regulation on invasive alien species
- Cadmium from phosphate fertilizer
- Nature-based solutions & renaturing cities (Green Infrastructure)
- Pollinators decline
- Bioeconomy
- Policy/legislation reviews / health checks
- Links between biodiversity and climate change (triggered by the French conference: “Climat et biodiversité” on November 6th 2015)