



Bridging the gap between policy and knowledge  
on biodiversity in Europe

## Document of Work (DoW) Mitigation hierarchy request

### Content

General information  
Background and context of the Call  
Refined request question  
Suggested Programme of Work and Methods  
Logbook

Annex 1: Call for Knowledge  
Annex 2: Results of the Call for Knowledge

---

### *General Information*

---

**Original Title: How can ecosystem services foster the consideration of biodiversity when implementing the mitigation hierarchy (focusing on the first step = avoid)?**

This request was initially put to Eklipse following our fifth call for requests (CfR.5/2020) by Office Français de la Biodiversité (OFB) – French Agency for Biodiversity.

This document of work describes the results of the scoping activities as well as the background of the request and is the basis for the call for experts.

**Requesters:** Office Français de la Biodiversité (OFB) – French Agency for Biodiversity

**Date request received:** April/2020

**Date of first meeting with requesters, Eklipse KCB and methods experts:** 3<sup>rd</sup> of August 2020.

**Expected deadline for deliverables:** The results will be useful and used as soon as they are published. The implementation of the mitigation hierarchy is already running in France, as well as in other European countries. However, we have no strict deadline.





In order to refine the request, the following scoping activities have been carried out:

- a. Call for knowledge in order to identify already existing work on the request and
- b. Evaluation of the policy and stakeholder relevance via bilateral telephone interviews and email requests to ensure the policy relevance of the request detailed below and to refine the request.

This Document of Work (DoW) describes the results of the scoping activities as well as the background of the request and is the basis for the call for experts. It explores the existing knowledge in this area, who the main knowledge holders are, how the request relates to existing policy processes at the EU level, and identifies plausible and relevant programmes of work and methodology for answering this request.

---

### *Background and context of the Call*

---

#### **Original request:**

*The first step of the mitigation hierarchy consists in avoiding that a project, a plan or a program negatively affects biodiversity, including ecosystem services. In practice the implementation of the hierarchy shows that the first step is neither correctly applied nor well-documented. A common mistake is the lack of consideration for ecosystem services at the “avoid” (but not only) stage of the hierarchy. Knowledge gap does not seem to explain this state of play, because the scientific community developed many tools and methods to assess ecosystem services over the last decades. We advocate that the development of a simple, ready-to-use decision-making tool could increase the consideration for ecosystem services. A preliminary step should clarify whether and in which way the consideration of ecosystem services is fostering the preservation of biodiversity. The Eclipse approach would be very useful to review and synthesise the existing practices in EU member states<sup>1</sup>.*

#### **Background:**

The policy context is the adherence to and implementation of the mitigation hierarchy in France. Here, the principles of the mitigation hierarchy have been reaffirmed by the legislation “Reconquest of biodiversity, nature and landscapes” of 2016. Each project, plan or programme leading an impact assessment is requested first to avoid, to reduce, and then to mitigate its effects on biodiversity. Concerning the first stage of the hierarchy, ecosystem services are explicitly mentioned in the legislation. To be authorised, a project, plan, or program must demonstrate the correct implementation of the hierarchy, including the first step of “avoid” in the impact assessment. The main goal of the request is to foster the consideration of ecosystem services at the first stage (avoid) of the mitigation in the authorisation process. The idea of this request is to help the agency to develop and apply transferable tools (potentially based on best practice) by a guidance document in order to help identification of adequate ES consideration and natural capital of relevant project, plan, etc. in the mitigation hierarchy. It is important that this tool is pragmatic, deliverable and co-created with the involvement of practitioners

---

<sup>1</sup> WSP EKN to develop a net gain planning tool - <https://ecosystemsknowledge.net/netgain>

that will apply it. An additional objective is to understand the linkage of ecosystem services and biodiversity protection during the mitigation level evaluation.

The main goal of the request, put forward by the French Agency for Biodiversity, is two-folded:

1. to identify EU-wide cases and practices of considering / addressing ecosystem services in impact assessments, mitigation hierarchies or similar processes
2. to develop guidance on best practice and information on:
  - a. if and how ecosystem services consideration / operationalization can be integrated in impact assessments and mitigation hierarchies to enhance biodiversity conservation and understand risks and potential ecosystem service trade-offs.
  - b. what kind of outcomes, impacts, challenges, solutions, etc. may occur when the ecosystem services concept is used in the impact assessment, mitigation hierarchies and similar processes.
  - c. available and suitable tools to help the avoid stage or ways to enable planners of consideration of various options during plan preparation.

The activities should focus on the mitigation hierarchy “avoid” stage.

#### Policy relevance and timeliness of the request:

The request specifically focuses on the French legislation of “Reconquest of biodiversity, nature and landscapes” of 2016 and its mitigation hierarchy, which however has relevant processes in other EU countries through the mitigation hierarchy (e.g. Germany) or through the Strategic Environmental Assessment or Environmental Impact Assessment Directives EU-wide (in line with the with the EU directive on EIA (Environmental Impact Assessment (EIA) Directive (2014/52/EU)). The request also directly feeds into the EU Biodiversity Strategy 2020 Target 5’s No Net Loss Initiative and the EU Biodiversity Strategy 2030 net gain principle (more information Annex 2c).

No specific timeline was established. For the suggestion of method, two options have been estimated (‘4-8 months, medium resources’ and ‘8 months or upwards, high resources’).

#### Added value of Eklipse:

The added value of Eklipse can be to collect relevant examples about tools, processes or good practice of the mitigation hierarchy (if the Member State/region has similar process in effect) and/or processes within SEAs and EIAs to consider ecosystem services and to share best practice EU-wide. A further inquiry can be to map whether other Member States are also in need of such tools, and whether they are interested to develop a joint guidance also considering trade-offs and/or double accounting of ecosystem services. The guidance can also serve as a tool for enhancing biodiversity through ecosystem services assessment increasing the scientific and technical knowledge at EU level with the contribution of numerous stakeholders.





---

### *Refined request question*

---

- How does 'ecosystem services' and natural capital as concepts foster the conservation and enhancement of biodiversity / how has it been used as a biodiversity proxy within mitigation hierarchies and impact assessment processes?
- How ecosystem services should be assessed within the mitigation hierarchy/EIAs/SEAs particularly at the avoid level by the authorities to ensure the project/programme, etc. does not lead to biodiversity loss (also considering timeline and long-term impacts)?
- If / how/ where EU countries consider ecosystem services within the mitigation hierarchy, or in wider sense with their impact assessment procedures?
- How ecosystem services can be used more effectively in both policy and developments (role of development plans in highlighting the Mitigation Hierarchy) to help developers follow the mitigation hierarchy and to help evaluators consider the project/programme, etc. impacts on biodiversity and ecosystem services?
- What is the level of replicability/transferability of suggested/known tools/guidance/process in other countries, regions?

---

### *Suggested Programme of work and methods*

---

- Mapping ecosystem services' consideration and assessment regulation and practice at EU Member States and impact assessment procedures and other appropriate tools within the mitigation hierarchy, applied on the 'avoid' stage.
- Collection of best practices and relevant tools of the above.
- Collection of evidence about ecosystem services and natural capital consideration contributing to biodiversity conservation/elevated policy focus.
- Collection of evidence in development plans and other statutory policies/plans/programmes/projects talking about mitigation hierarchy explicitly or implicitly.
- Methods Expert Group (MEG) suggestion to use the transdisciplinary expert group with an applied-policy Delphi process, complementing either scoping review (medium time and resources) or systematic review (higher time and resources) (more information Annex 3).

---

## References

---

- Arlidge, WNS, Bull J.W, Addison, PFE (2018) A Global Mitigation Hierarchy for Nature Conservation BioScience, Volume 68, Issue 5, May 2018, Pages 336–347, <https://doi.org/10.1093/biosci/biy029>
- Baker, J., Sheate, W.R., Bennett, T., Payne, D., Tucker, G. White, O and Forrest, S. (2014), [Evaluation of the Biodiversity Offsetting Pilot Programme Final Report Volume 1](#) (June 2014), for Department for Environment, Food and Rural Affairs (published 2016).
- Baker, J., Papadopoulou, L., and Sheate, W. 2018. United Kingdom, Chapter 12 in Wende, W., Tucker, G.-M., Quétier, F., Rayment, M., Darbi, M. (Eds.), in Biodiversity Offsets - European Perspectives on No Net Loss of Biodiversity and Ecosystem Services. Springer International Publishing
- Baker, J., Sheate, W.R., Papadopoulou, L., Bennett, T., Payne, D. and Bull, J. (2013), [Indicative Costs of Current Compensation Arrangements for Biodiversity Loss: Illustrative Case Studies Report on Task 4](#) (November 2013) for Department for Environment, Food and Rural Affairs (published 2016).
- Baker, J., Sheate, W.R., Bennett, T., Payne, D., Tucker, G. White, O and Forrest, S. (2014), [Evaluation of the Biodiversity Offsetting Pilot Programme Final Report Volume 1](#) (June 2014), for Department for Environment,
- Broekx, S., Liekens, I., Peelaerts, W., De Nocker, L., Staes, J., Meire, P., ... & Cerulus present a web-based, T. (2013). Ecosystem services in environmental impact assessment and strategic environmental assessment. *Environmental Impact Assessment Review*, 40, 1-2. Food and Rural Affairs (published 2016).
- CBSI (2015) A cross-sector guide for implementing the Mitigation Hierarchy <http://www.csbi.org.uk/wp-content/uploads/2017/10/Mitigation-Hierarchy-Executive-summary-and-Overview.pdf>
- Collingwood Env Consultants Study concerning the preparation of the report on the application and effectiveness of the SEA Directive (Directive 2001/42/EC) Final Study (2016) [https://ec.europa.eu/environment/eia/pdf/study\\_SEA\\_directive.pdf](https://ec.europa.eu/environment/eia/pdf/study_SEA_directive.pdf)
- European Union (2013) [Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment \(EIA\)](#) and [Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment \(SEA\)](#).
- Geneletti, D. (2015). A conceptual approach to promote the integration of ecosystem services in strategic environmental assessment. *Journal of Environmental Assessment Policy and Management*, 17(04), 1550035.
- Holzinger et al 2016 Natural Capital Planning Tool (UK application) <http://ncptool.com/>
- Natural England (2019) Biodiversity Metric <http://publications.naturalengland.org.uk/publication/5850908674228224>
- Rozas-Vasquez, D., Fuerst, C., & Geneletti, D. (2019). Integrating ecosystem services in spatial planning and strategic environmental assessment: The role of the cascade model. *Environmental Impact Assessment Review*, 78, 106291.





Scott et al (2014) The NEAT Tree <https://neat.ecosystemsknowledge.net/regulatory-tools.html> (This is piece detailing how to mainstream ecosystem services into impact assessments.) Part of UNEPWMC report 2014.

UNEPWMC (2014) UKNEA Follow on (2012-2014) struggling to get working link here is access [https://www.academia.edu/13417344/UK National Ecosystem Assessment Follow-on synthesis of the key findings](https://www.academia.edu/13417344/UK_National_Ecosystem_Assessment_Follow-on_synthesis_of_the_key_findings)

Underwood, E., Wende, W., Stein, C. and Tucker, G., Sheate, W., Baker, J., and ten Brink, P. (2014), [A review of recent biodiversity offsetting practice in Germany](#), Final Report (February 2014), for Department for Environment, Food and Rural Affairs (published 2016).

Warwickshire County Council Guide to Warwickshire, Coventry and Solihull Biodiversity Offsetting Biodiversity Impact Assessment Calculator v19.0  
<https://apps.warwickshire.gov.uk/api/documents/WCCC-863-791>

EC working paper on ES integration to decision-making:

Part I:

[https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD\\_2019\\_305\\_F1\\_STAFF\\_WORKING\\_PAPER\\_EN\\_V2\\_P1\\_1042629.PDF](https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD_2019_305_F1_STAFF_WORKING_PAPER_EN_V2_P1_1042629.PDF)

Part II:

[https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD\\_2019\\_305\\_F1\\_STAFF\\_WORKING\\_PAPER\\_EN\\_V2\\_P2\\_1042629.PDF](https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD_2019_305_F1_STAFF_WORKING_PAPER_EN_V2_P2_1042629.PDF)

Part III:

[https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD\\_2019\\_305\\_F1\\_STAFF\\_WORKING\\_PAPER\\_EN\\_V2\\_P3\\_1042629.PDF](https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD_2019_305_F1_STAFF_WORKING_PAPER_EN_V2_P3_1042629.PDF)

Institute for European Environmental Policy, Guidance on achieving no net loss or net gain of biodiversity and ecosystem services, July 2020:

<https://ec.europa.eu/environment/nature/biodiversity/nnl/pdf/NNL%20Guidance%20-%20July%202020%20-%20Final.pdf>

### Case studies

Warwickshire County Council Biodiversity Impact Assessment tool this helps developers understand the offsetting costs up front and thus addresses the avoid aspect.

<https://api.warwickshire.gov.uk/documents/WCCC-863-791>

Natural Capital Planning Tool <http://ncptool.com/> a peer reviewed tool with case studies to help understand ES impacts and thus help quality of development at all stages of mitigation hierarchy .

NEAT Tree (Scott et al 2014) Section written by myself and Jonathan Baker on mainstreaming ecosystem services

into [https://neat.ecosystemsknowledge.net/pdfs/environmental\\_impact\\_assessment\\_ecosystem\\_protected\\_tool.pdf](https://neat.ecosystemsknowledge.net/pdfs/environmental_impact_assessment_ecosystem_protected_tool.pdf)

Hungary's M3 motorway extension to the Ukrainian border's Environmental Impact Assessment includes an ES assessment as an annex (not publicly available).

Geneletti, D., Zardo, L., Cortinovis, C. (2016) Promoting nature-based solutions for climate adaptation in cities through impact assessment. In: Geneletti, D (Ed). Handbook on biodiversity and ecosystem services in impact assessment, Edward Elgar Publishing, 428-452.

The Role of “No Net Loss” Policies in Conserving Biodiversity Threatened by the Global Infrastructure Boom. <https://www.sciencedirect.com/science/article/pii/S2590332219301332>

### Available tools

The Net Gain Planning Tool - <https://ecosystemknowledge.net/netgain>

---

## *Logbook*

---

The logbook describes the agenda of exchanges with the Requester, the Knowledge Coordination Body (KCB) and the Methods group and the contents discussed during the meetings.

<b>Date</b>	<b>Participants</b>	<b>Topic</b>	<b>Platform</b>
24.06.2020	KCB 1st scoping group meeting	Topic of the request	Online (Gotomeeting)
30.07.2020	Onno Knol, Vincenza Ferrara, Carla-Leanne Wasbourne, Alister Scott, Lyudmyla Zahvoyska, Heidi Wittmer, Karla Locher,	Topic of the request	Online (Gotomeeting)
03.09.2020	Nicolas Hette-Tronquart (requester), Onno Knol, Carla-Leanne Wasbourne, Lyudmyla Zahvoyska, Alister Scott, Karla Locher.	To discuss the request, and clarify aspects with the requester	Online (Gotomeeting)





17.09.2020	Agnes Zolyomi, Onno Knol, Salla Rantala, Carla-Leanne Wasbourne, Vincenza Ferrara, Spyridoula Ntemiri, Alister Scott, Heidi Wittmer, Karla Locher, Liisa Varumo	DoW, refined question and next steps	Online (Gotomeeting)
29.09.2020	Nicolas Hette-Tronquart (requester), Agnes Zolyomi, Onno Knol, Carla-Leanne Wasbourne, Vincenza Ferrara, Lyudmyla Zahvoyska, Alister Scott, Spyridoula Ntemiri, Heidi Wittmer, Karla Locher.	To discuss the request, and clarify aspects with the requester	Online (Gotomeeting)
7.10.2020	Agnes Zolyomi, Onno Knol, Philip Roche Lyudmyla Zahvoyska, Alister Scott, Karla Locher.	Last discussion previous the Call for Knowledge	Online (Gotomeeting)
October – December 11th 2020	KCB scoping group meeting	Call for Knowledge open	LinkedIn Eklipse Forum
January 12th, 28th 2021	KCB scoping group meeting	KCB scoping group decided to move forward with the request.	Online
February 11th, 2021	KCB scoping group meeting	Finalisation of the DoW and submission to KGB.	Online (Google doc)



## ANNEX 1: Call for Knowledge

CALL FOR KNOWLEDGE – Eklipse- CfK 02/2020  
October 2020 Responses by November 23rd, 2020

TOPIC:

**Do ecosystem services assessments support biodiversity conservation? - a review of evidence from environmental impact assessments  
aka**

**How can we improve adherence to the Mitigation Hierarchy using ecosystem services with particular focus on the avoid stage?**

### 1 Invitation to share knowledge for informed decision-making

Eklipse is searching for knowledge (published and unpublished, theoretical and practical) to decide if and how to proceed with knowledge synthesis. The policy context is the implementation of the mitigation hierarchy (avoid, reduce, restore, compensate) in France that is used to tackle the negative impacts on biodiversity from development projects. The main challenge identified, also beyond France, is the effective application of the first step, “avoid”, in the mitigation hierarchy and impact assessment. While ecosystem services are explicitly mentioned in the legislation they are rarely applied in practice or these experiences are not published. The main goal of the request, put forward by the French Agency for Biodiversity, is two-folded:

1. to identify EU-wide cases and practices of considering / addressing ecosystem services in impact assessments, mitigation hierarchies or similar processes
2. to develop guidance on best practice and information on:
  - a. if and how ecosystem services consideration / operationalization can be integrated in impact assessments and mitigation hierarchies to enhance biodiversity conservation and understand risks and potential ecosystem service trade-offs.
  - b. what kind of outcomes, impacts, challenges, solutions, etc. may occur when the ecosystem services concept is used in the impact assessment, mitigation hierarchies and similar processes.





The activities should focus on the mitigation hierarchy's "avoid" stage when possible, but general practices of ecosystem services consideration throughout similar processes are also important to involve.

Eklipse invites you to provide contributions to answering the following questions:

- Do **other EU countries** consider ecosystem services within the mitigation hierarchy, or in a wider sense with their impact assessment procedures? If so how and where?
- How have '**ecosystem services**' and '**natural capital**' or **similar concepts** been used in combination with biodiversity within mitigation hierarchies and impact assessment processes?
- Do you have any potentially relevant **positive or negative experience** with the **application of ecosystem services or natural capital** in mitigation hierarchies or impact assessments more generally (in particular, experiences from **EIAs/SEAs**)?
- What are the experiences and co-developed approaches in both **policy design** and **development plans** to help developers follow the mitigation hierarchy?

The final framing of the request is being developed through an interactive dialogue between the Eklipse scientists and the requester, and will be further discussed with stakeholders to ensure policy relevance at the European level. We want to explore the knowledge available, to decide if and with which methodology to answer this request.

### Contributing to the Call for Knowledge

Please contribute your comments and knowledge/references through the Eklipse Forum on the [Eklipse LinkedIn page](#). Contributions may include: (a) links to open access papers, (b) links to published and unpublished grey literature or case studies, (c) descriptions of ongoing research projects or knowledge compilations expected to deliver results within the next year, or (d) your on-the-ground experiences in this field. Contributions should be submitted under the following: (1) literature reviews, (2) empirical studies/practical experiences, (3) modelling studies, and (4) conceptual papers.

### Using the LinkedIn Forum

[The Eklipse Forum group on LinkedIn](#) is a platform where the public, policy makers, and scientists can exchange knowledge, experience, and advice on biodiversity and ecosystem services, engage with calls for knowledge, share relevant reports and media, and discuss hot science-policy topics. Those wishing to join the forum can click the 'Request-to-join button' on the group page; permission will then be granted by a group admin. Members of the group can also invite others with whom they are connected on LinkedIn to join. (More information about Eklipse LinkedIn Forum can be found on [the Forum's page](#)).

## 2 Background on Eklipse

Eklipse started as an EU-funded project in February 2016 and is about to become self-standing. With support from the European Commission and a high level Strategic Advisory Board (SAB), the project aimed to establish a robust and flexible long-term mechanism for policy support on biodiversity and ecosystem services, communicating and engaging a wide set of knowledge holders and ensuring tailor-made outreach of results to knowledge requesters and society more broadly.

The success of Eklipse and its resulting mechanism is in everyone's hands:

- the ‘requesters’ from policy and society who need to know what knowledge is out there to answer their policy or societal needs;
- the knowledge holders (be they scientists or other citizens) who want their knowledge to mean something; and
- the extensive networks working on biodiversity and ecosystem services who have the enthusiasm and knowledge to make the mechanism work in the long term.

For more details on the process, visit [Eclipse’s website about knowledge synthesis](#).





## ANNEX 2: Results Call for Knowledge

### Summary

The French Agency for Biodiversity (OFB) requests help from the Eklipse organisation to improve the functioning of the Mitigation Hierarchy. The use of the Hierarchy is obliged by French law to minimize negative effects of any project or activity on biodiversity and ecosystem services. The preferred situation would be to avoid those effects (first stage of the hierarchy), but in practice the law results in repairing or compensating negative effects. The Agency likes to have a simple and practical decision-making tool that increases the consideration of ecosystem services early in the process, focusing on the avoid stage of the Hierarchy. Their questions to Eklipse are a) to provide EU-wide use-cases and best practises of the Mitigation Hierarchy, and b) to (help) develop a guidance document and a tool to assist planners during their plan preparations. Regarding policy relevance: the request is in line with the “No Net Loss” initiative of the EU biodiversity Strategy, as was confirmed by the European Commission. The preferred timeline of the Eklipse consultation is 4- 8 months.

The scoping phase of this project comprised of 8 meetings with and without the requester, to clarify the questions, followed by a web-call for knowledge. This call resulted in documented suggestions from 9 different experts. In addition, the Methods Expert Group performed an analysis of possible methods. The results of the scoping phase are a set of 5 refined research questions, a list of 20 relevant literature references, 6 available case studies, and a proposal for a combination of methods including mapping and assessment of EU practises, a multi-expert consultation in the form of an applied-policy Delphi process complemented with a scoping or a systematic review, depending on the available time/resources. A Bayesian belief network method also scored high but was not chosen, partly because of limited familiarity with it by the group.

### Full Responses from Participants

#### a. From the Forum:

##### Ajin Madhavan (Senior Research Fellow)

I think it is important that to consider ecosystem services or similar concepts in combination with biodiversity during the process of environmental impact assessments, since these two are significantly linked. I am not sure how substantially they are used together while implementing a project. From my experience, ecosystem services are largely omitted and often only the present environmental conditions are considered along with the diversity. This may be due to the lack of a proper framework or models in the respected fields.

There should be concerned laws or policies that should ensure a proper compensation to the environment if an industry is not able to avoid or minimize the adverse impacts on an ecosystem to move ahead with their projects.

Here I found an article related to the subject, kindly find it and thanks for the opportunity.

Paper:

<https://www.researchgate.net/publication/308771276> Investigating the inclusion of ecosystem services in biodiversity offsetting

□ Laurent Thannberger

one of the major issue in compensation (even if it is not the priority) is that the destroyed soil is balanced by a soil with very different properties. We recently published an article promoting a tool aiming to take in account the 11 services of the soils, as detailed by the MEA.

<https://lnkd.in/dicziUX>

following this, I worked to implement this tool to drive the choices in remediating soils, comparing the needs of soil's properties, the level after degradation-remediation-amelioration... and I pushed the reflexion till a comparison tool for compensation (see joined document). It's only a proposal, a path to explore.

<https://www.linkedin.com/feed/update/urn:li:activity:6737684201782435840>

□ Sylvie Campagne (Post-Doc chez Institute of Physical Geography & Landscape Ecology Leibniz Universität Hannover)

I'm currently finishing on a technical report in order to guide how to integrate Ecosystem Services in impact assessment in France (publication in French planned for February 2021). It is a work with the French DREAL (Regional Directorate for Environment, Development and Housing). Our approach is based on the existing international literature adapted on the French context. In this report we don't go until the mitigation hierarchies but it is our willingness to go in it next year depending on the funds we will find. I'm very interested in developing collaboration on this subject!

□ Zuzana Harmáčková (CzechGlobe • IPBES Values Assessment • IPBES ECA Regional Assessment • Ecosystem Services Partnership)

I'm hoping this may be related to the posed questions: new ways to model and create knowledge on ecosystem services are currently developed to allow their direct operationalization under the SEEA-EEA framework to assess impacts on natural capital (a summary presentation:

<https://www.youtube.com/watch?v=Mn7VGhx-Wdo&feature=youtu.be> and a research paper:

<https://www.sciencedirect.com/science/article/pii/S2212041620301492?dgcid=coauthor>).

More examples of practical applications are available within the ALICE project (overview:

<https://www.youtube.com/watch?v=sqjqin7wVaQ&feature=youtu.be>,

website: <http://project-alice.com/>).

□ Carla Madueño (Sustainability Sr. Associate @KPMG Germany || Youth in Landscapes Initiative Steering Committee)

So I am not quite sure whether this answers the question but there is the Integrated Profit and Loss Accounting method - it accounts (monetizes) impacts (positive and negative externalities) that a company leaves throughout its business operations. I am aware PwC and KPMG have been working (each one) on this already for a while, KPMG has developed the True Value method which monetizes





environmental, social and economic externalities (based on triple bottom line). Among the environmental externalities to monetize you find emissions (in CO<sub>2</sub>eq, waste generation, water consumption and sometimes even land use as ha sealed or under crop regime). More about the method here: <https://home.kpmg/content/dam/kpmg/nl/pdf/2020/services/kpmg-true-value.pdf>

Additionally there are common efforts coming from the Corporate Sector (mostly German corporates and Audit firms) aiming at standardizing monetization coefficients, calculation and disclosure format of such integrated profit and loss accounting (which on the environmental side do cover natural capital losses), check the Value Balancing Alliance <https://www.value-balancing.com/about-us/> (currently piloting the draft methodology) The idea behind VBA (currently under EU's mandate) goes beyond standardizing methodologies. It aims at integrating valuation of externalities at the core decision making of corporates (steering relevance and impact). So that companies take not only decisions based on profit but also based on value at risk for society (in the case of unsustainable practices) and on value added to society (in the case of sustainable practices).  
<https://www.value-balancing.com/about-us/>

**b. Compiled by the Requester:**

- Work of Sylvie Campagne (links with Philip Roche, member of Eklipse):**

Sylvie has done a thesis on ecosystem services and she is finalizing a guide on this subject with the DREAL Hauts-de-France. The guide should come out in early 2021. She has created a matrix of capacities that design offices have tested.

Here is her contact: Sylvie Campagne [sylviecampagne@gmail.com](mailto:sylviecampagne@gmail.com)  
No document

- Work of Léa Tardieu (Transport infrastructures and ecosystem services)**

I did my thesis (a few years ago) on the subject, applied to transportation infrastructures. Here are the articles, papers that have been published on it.

Contact: [tardieu@centre-cired.fr](mailto:tardieu@centre-cired.fr)  
5 documents in "contributions\_Lea\_Tardieu.zip"

- Experiment of "BiodiverCité", a project from Bordeaux City**

Submitted by Nathalie Berthier [nathalie.berthier@developpement-durable.gouv.fr](mailto:nathalie.berthier@developpement-durable.gouv.fr), and Hervé Demange [herve.demange@ofb.gouv.fr](mailto:herve.demange@ofb.gouv.fr).

The completed project "BiodiverCité" carried by the city of Bordeaux and winner of the AAP pilot sites for the recovery of biodiversity could be brought to the attention of the Eklipse consortium.

The project provides an example of the use of ecosystem services. In the framework of one of the many project's outputs, a financial tool was developed to qualify the ecosystem services produced by wetlands.

Contacts :

LEYMARIE Mathilde [m.leymarie@bordeaux-metropole.fr](mailto:m.leymarie@bordeaux-metropole.fr)

DJEDOVIC Cédric [cedric.djedovic@ademe.fr](mailto:cedric.djedovic@ademe.fr)

No document

□ **Work of Anne-Charlotte Vaissière**

Regarding your call for knowledge on ecosystem services and avoidance, please find attached an article I had the opportunity to co-author on the use of the ecosystem services approach to ecological compensation. We try to propose a more integrated analysis by considering this issue for the whole ERC sequence (including the avoidance phase)

Contact: Anne-Charlotte Vaissière [anne-charlotte.vaissiere@universite-paris-saclay.fr](mailto:anne-charlotte.vaissiere@universite-paris-saclay.fr)

1 document : « Jacob et al ECOSER 2016.pdf »

□ **Soils and ecosystem services**

Submitted by Thomas EGLIN (Ademe) [thomas.eclin@ademe.fr](mailto:thomas.eclin@ademe.fr)

Ademe (a public agency, active in the implementation of public policy in the areas of the environment, energy and sustainable development) supports several projects (finalized or in progress) on the evaluation of soil services and their consideration in land use planning.

We can, if necessary, try to give you an overview and list relevant contacts.

Note the existence of a brand new R&D network working on this subject: <https://urbasol.agrocampus-ouest.fr/fr>. A list of current projects is listed there, as well as contacts.

Contacts :

GRAND Cécile [cecile.grand@ademe.fr](mailto:cecile.grand@ademe.fr);

Flavien POINÇOT [flavien.poincot@acta.asso.fr](mailto:flavien.poincot@acta.asso.fr);

LEFRANC Anne [anne.lefranc@ademe.fr](mailto:anne.lefranc@ademe.fr);

No document

□ **Marine ecosystems and ecosystem services (Valmer project)**

Submitted by Olivier Abellard and Karine Dedieu

The VALMER (Valuing ecosystem services in the Western Channel) project aimed to examine how the integrated assessment of ecosystem services can contribute to effective planning and management of the marine environment.

Marine sites including the Normandy Gulf of Brittany and Marine Natural Park Iroise served as pilot sites.

<https://www.ifremer.fr/Recherche/Departements-scientifiques/Focus/Projet-VALMER>

<http://valmer.marinebiodiversity.org/etudes-de-cas/golfe-normand-breton/?lang=fr>

Please note that the research team “Ifremer – Amure” had accompanied the project on the economic valuation of ecosystem services.

In Granville, we have booklets on the Normandy Gulf of Brittany that present the results of the assessments of marine ecosystem services, but also the results of prospective studies on the future of





this territory according to 4 scenarios of evolution, focusing in particular on 2 subjects (recreational services linked to foreshore habitats and food services from fishing linked to offshore habitats). In this last work, we illustrated for each scenario the "face" of the territory of tomorrow with maps, described the contextual elements triggering the scenario, the strengths and weaknesses of marine activities as well as the context of public policies allowing this evolution.

Please find attached a presentation in the form of a VALMER brochure for the Normandy Gulf of Brittany. If you are interested, the other reports are available on request.

Contacts :

Olivier ABELLARD [olivier.abellard@ofb.gouv.fr](mailto:olivier.abellard@ofb.gouv.fr)

Karine Dedieu [karine.dedieu@ofb.gouv.fr](mailto:karine.dedieu@ofb.gouv.fr)

1 Document : « Brochure1\_Presentation\_03-02-2015.pdf »

**Practical cases on wetlands**

Submitted by Laetitia Boutet-Berry

Among the projects I had to evaluate, ecosystem services are not considered in the implementation of the mitigation hierarchy, except in some projects impacting wetlands. Only those projects where the "national method of wetland function assessment" has been applied address the notion of ecosystem services.

Last example to date: Photovoltaic power plant of St Cyr en Val (Loiret county).

More about this method in French: <http://www.zones-humides.org/guide-de-la-m%C3%A9thode-nationale-d%C3%A9valuation-des-fonctions-des-zones-humides>

Contact : [laetitia.boutet-berry@ofb.gouv.fr](mailto:laetitia.boutet-berry@ofb.gouv.fr)

No document

**Proposal for discussion with CdC Biodiversité**

CdC Biodiversité is a subsidiary of Caisse des Dépôts entirely dedicated to actions in favor of biodiversity and its sustainable management. It works on behalf of all project owners, local authorities and companies to manage their voluntary or regulatory (compensation) actions for the restoration natural areas.

CdC Biodiversité conducted some works on the topic of ecosystem services but not mature enough to be sent or under cover of confidentiality. On the other hand, they are ok to be auditioned.

[matthieu.rivet@cdc-biodiversite.fr](mailto:matthieu.rivet@cdc-biodiversite.fr)

No document

**Case studies analysis for master students**

Submitted by Magali Gerino (Toulouse university)

I am working on the use of natural services for environmental assessment. We have carried out several simulation exercises with the students of master 2 BEE - Anthropic Ecosystem to carry out life cycle or scenario diagnostics:



- Comparisons of different nature based solutions for waste water treatment plants
- Comparison of resource exploitation scenarios within the framework of the regional quarry scheme of Occitania.

I will be happy to exchange with you on this type of implementation of the concept of ecosystem services in a very applied framework.

Contact : [magali.gerino@univ-tlse3.fr](mailto:magali.gerino@univ-tlse3.fr)

No document

### c. Provided by EC (Rayka Hauser):

- DG SANTE is in the lead on defining specific protection goals and updating the protocol for the assessment of pesticide risks for biodiversity, in which the proposed approach is to use selected priority ecosystem services. This has sparked a discussion on the appropriateness of using ecosystem services as a proxy for biodiversity, so the study insights could be useful. Vujadin Kovacevic (EC) could provide more information.
- Development of EU targets to restore the most degraded ecosystems, in particular those with a high potential to support climate change mitigation and adaptation, disaster risk reduction as well as other essential ecosystem services. This is an action under the EU Biodiversity Strategy for 2030. The Commission proposal is to be ready by the end of 2021, and an Impact Assessment is now starting to elaborate and assess the options for restoration targets and EU instruments to realize them. Jakub Wejchert (EC) could provide more information.
- Guidance note ecosystems and their services. It aims at supporting healthy multifunctional ecosystems, taking account of less visible but essential ecosystem services that depend on good condition, rather than prioritising very few selected services at the expense of others.
- EC working paper on ES integration to decision-making:

Part I:

[https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD\\_2019\\_305\\_F1\\_STAFF\\_WORKING\\_PAPER\\_EN\\_V2\\_P1\\_1042629.PDF](https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD_2019_305_F1_STAFF_WORKING_PAPER_EN_V2_P1_1042629.PDF)

Part II:

[https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD\\_2019\\_305\\_F1\\_STAFF\\_WORKING\\_PAPER\\_EN\\_V2\\_P2\\_1042629.PDF](https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD_2019_305_F1_STAFF_WORKING_PAPER_EN_V2_P2_1042629.PDF)

Part III:

[https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD\\_2019\\_305\\_F1\\_STAFF\\_WORKING\\_PAPER\\_EN\\_V2\\_P3\\_1042629.PDF](https://ec.europa.eu/environment/nature/ecosystems/pdf/SWD_2019_305_F1_STAFF_WORKING_PAPER_EN_V2_P3_1042629.PDF)





## ANNEX 3: Rationale on parameters and results of the MAGICKS tool run on 5th February 2021.

Prepared by Eklipse Method Expert Group members

Alister Scott

Spyridoula Ntemiri and

Lyudmyla Zahvoyska

With the support of Miriam Grace.

### **Background**

Given the feedback provided by the requester the MEG members decided to run twice the MAGICKS tool for two options:

Option A: 4-8 months timeframe and medium resources

Option B: 8 months or upwards timeframe and high resources

The rationale for the options chosen is provided on the respective 'Rationale' worksheets.

The outputs for running is provided on the respective 'Output' worksheets.

### **Results and final suggestion by the MEG members.**

The 'multiple expert consultation with Delphi process' and the 'Bayesian belief network' scored highest for both Options. MEG representatives believe that the expert consultation with the Delphi process would be the most appropriate method to be used, as the deliberative process of consultation with the expert group would provide the best setting for providing policy and practice recommendations. Further to this, we believe the best results would be achieved combining an applied policy Delphi process (Glass et al 2013) with a scoping review (medium time and resources) and systematic review (high time and resources). This combination is optimal for collecting and assessing relevant scientific and technical knowledge leading to conclusions/recommendations. In addition, it is important that the expert group should be transdisciplinary to allow for expert input from different policy areas / sectors / stakeholders. The policy Delphi has 6 components but is flexible to any policy challenge; formulation of the issues from the literature and participants ; exposing the options; determining initial positions on the issues; exploring and obtaining the reasons for agreements/disagreements; (re) evaluating the underlying reasons; and

recommendations .

Regarding the 'Bayesian belief network' none of the members participating in the discussion on the current request have had hands-on experience on its implementation. Provided the probabilistic and predictive nature of the methodology and the up front modelling requirements we do not see feel it is suitable to this request. However those with more familiarity might wish to respond.

Core reference: Glass, J.H., **Scott, A.J.**, Price, M.F. (2013). The power of the process: Co-producing a sustainability assessment toolkit for upland estate management in Scotland. *Land Use Policy*, **30**(1), 254-265

### Rationale Option A

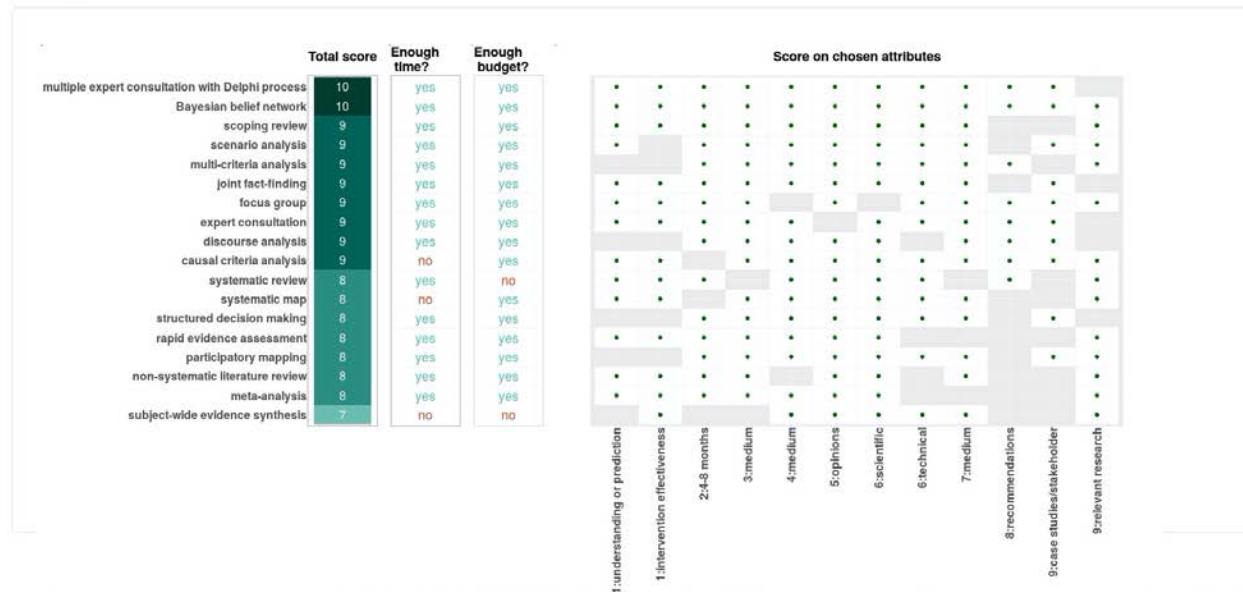
Question	Focus	Option(s) Chosen	Justification	Comments/notes
1	Purpose	Understanding or prediction, seeking measures of intervention effectiveness	Implicit assumption that hierarchy needs to be better understood. Is the level of understanding a problem, or is it abused? Understanding more relevant than predictive power. Is skipping steps a conscious decision or abuse? Why is the first step of the hierarchy 'avoid' not being used? This can be linked to the need to understand what case studies of good or bad management are available and relevant, and how this links to the available interventions.	Revised. Relevant methodologies and optimal management are not considered the primary purpose of the request.
2	Time	4-8 months	Checked with the requester; a longer timeline could also be an option.	Alternative running of the tool (>8 months), option B
3	Resources	Medium: full-time salary for 4-8 months as well as specialist expertise	Checked with the requester: still under enquiry for additional resources so two options should be provided (medium/high).	Alternative running of the tool (high resources), option B





4	Consequences	Medium: policy impact but this can be mitigated or adjusted	There are clear possible negative consequences but they can be mitigated or adjusted.	Note: This option is not fully clear. Who are the consequences for? We consider for the competent authorities implementing the hierarchy mitigation. We also consider Eclipse and its reputation but this is a parameter for all requests.
5	Controversy	Controversy in perceptions/values/opinions	The mitigation hierarchy is not controversial per se. What is, is how it fits into the development process. There are winners and losers and the losers will contest the choice. Controversy in perceptions is very important as there's a wide range, and this comes into mitigation.	Revised. Controversy on evidence was dropped.
6	Types of knowledge	Scientific, technical	The technical aspect is the most important as the requester is looking for practical examples but scientific is always relevant. Opinion is a subset of technical in this case. Some conflicts occur due to the differences in accumulated knowledge between communities, however this is likely too small a component to prioritise.	
7	Breadth	Intermediate: broader than a single well-defined research question, response or ecosystem, but not across more than one policy area	Intermediate, as multiple research questions but not more than one policy area.	
8	Output	Recommendations	Recommendations are more relevant based on the evidence.	
9	Existing knowledge	Anecdotal/local/case studies/stakeholder information Relevant research outputs	The requester is particularly interested in practical case studies. The references provide research information that should not be excluded. Stakeholder information and case studies are important to be explored.	
10	Uncertainty	No	Hard to do this. In addition it does not seem so relevant for the request.	

## Results



## Rationale Option B

Question	Focus	Option(s) Chosen	Justification	Comments/notes
1	Purpose	Understanding or prediction, seeking measures of intervention effectiveness	Implicit assumption that hierarchy needs to be better understood. Is the level of understanding a problem, or is it abused? Understanding more relevant than predictive power. Is skipping steps a conscious decision or abuse? Why is the first step of the hierarchy 'avoid' not being used? This can be linked to the need to understand what case studies of good or bad management are available, and how this links to the available interventions.	Revised. Relevant methodologies and optimal management are not considered the primary purpose of the tool.
2	Time	8 months or upward	Checked with the requester; a longer timeline could also be an option.	Alternative running of the tool (4-8 months) on a different worksheet.
3	Resources	High: full-time salary for 8 or more months as well as specialist expertise	Checked with the requester: still under enquiry for additional resources so two options should be provided (medium/high).	Alternative running of the tool (medium resources) on a different worksheet





4	Consequences	Medium: policy impact but this can be mitigated or adjusted	There are clear possible negative consequences but they can be mitigated or adjusted.	Note: This option is not fully clear. Who are the consequences for- we consider for the competent authorities implementing the hierarchy mitigation. We also consider Eclipse and its reputation but this is a parameter for all requests.
5	Controversy	Controversy in perceptions/values/opinions	The mitigation hierarchy is not controversial per se. What is, is how it fits into the development process. There are winners and losers and the losers will contest the choice. Controversy in perceptions is very important as there's a wide range, and this comes into mitigation.	Revised. Controversy on evidence was dropped.
6	Types of knowledge	Scientific, technical	The technical aspect is most important as the requester is looking for practical examples but scientific is always relevant. Opinion is a subset of technical in this case. Some conflicts occur due to the differences in accumulated knowledge between communities, however this is likely too small a component to prioritise.	
7	Breadth	Intermediate: broader than a single well-defined research question, response or ecosystem, but not across more than one policy area	Intermediate, as multiple research questions but not more than one policy area.	
8	Output	Recommendations	Recommendations are more relevant based on the evidence.	
9	Existing knowledge	Anecdotal/local/cas studies/stakeholder information Relevant research outputs	The requester is particularly interested in practical case studies. The references provide research information that should not be excluded. Stakeholder information and case studies are important to be explored.	
10	Uncertainty	No	Hard to do this. In addition it does not seem so relevant for the request.	

## Results

