EUROPEAN COMMISSION
Directorate-General for Environment

Directorate A - General Affairs, Knowledge And Resources
Unit ENV.A.3 - Green Knowledge & Research Hub, Life

SCIENTIFIC COMMITTEE ON HEALTH, ENVIRONMENTAL AND EMERGING RISKS (SCHEER)

Request for a scientific opinion on

"Emerging risks and opportunities for biodiversity protection and ecosystem services in the context of economic and societal challenges"

Commission Department requesting the Opinion: Directorate-General for Environment

1. Background

Responding to the need identified in Priority Objective 5[1] of the 7th Environmental Action Programme, DG ENV and its partners of the Environment Knowledge Community (EKC)[2] have established a foresight system for the systematic identification of emerging environmental issues (FORENV). This is also in line with the importance attributed to foresight and other forward looking tools in the Better Regulation guidelines,[3] which stress that those tools "complement quantitative modelling with a system thinking and long-term approach".[4] The EU's 8th Environment Action Programme also reiterates the emphasis on the need to identify climate and environmental risks and take action to prevent, mitigate and adapt to them, and fostering their engagement in closing knowledge gaps. Furthermore, with the launch of annual strategic foresight reports and attached activities, there is now a much bigger emphasis on foresight in the Commission overall and also in other EU institutions.

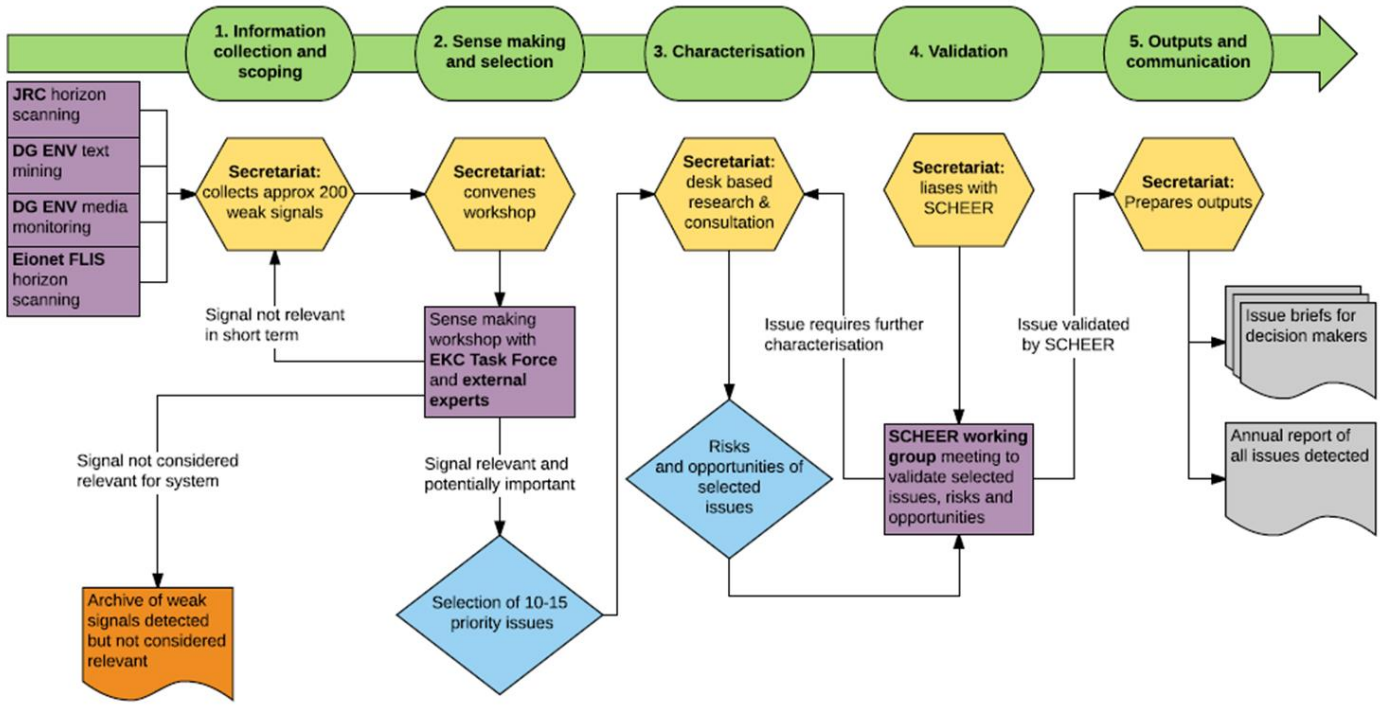
The EKC foresight system, FORENV, has the overall aim:

> To identify, characterise and assess emerging issues that may represent risks or opportunities to Europe's environment, and to communicate these results to policy-makers and other stakeholders, encouraging appropriate and timely actions to be taken. Ultimately the aim is to enable policy makers and other stakeholders to prevent or effectively manage emerging risks, and to ensure that opportunities are identified and exploited.

[1] Priority Objective 5 requests *'that (by 2020) the understanding of, and the ability to evaluate and manage, emerging environmental and climate risks are greatly improved'.* See http://ec.europa.eu/environment/action-programme/
[2] The EKC is an informal platform set up in 2015 by ENV, CLIMA, RTD, ESTAT, JRC and EEA to improve the generation and sharing of EU environmental knowledge.
[3] See the Better Regulation Toolbox (pp. 14-16), complementing the Better Regulation Guideline, SWD(2015) 111.
[4] Ibid.

FORENV is bringing together existing EU knowledge, expertise and practice on foresight and identification of emerging environmental issues. It shall provide regular and timely update to EU senior and middle management on issues which may represent opportunities and/or risks for the environment.

FORENV is based on a 5 step approach, as detailed in the image below:



The primary sources of information for the collection of information (Step 1) will be through the horizon scanning activities currently in place in the JRC and EEA/Eionet FLIS[5]. The Science for Environment Policy news alerts managed by ENV[6] will also be screened. Commission and external experts will be involved in the sense making and prioritisation (Step 2) and in the characterisation of the priority issues (Step 3). The Scientific Committee on health, environmental and emerging risks (SCHEER) as well as the EEA's Scientific Committee are asked to peer review and validate the process (Step 4), and the final findings will be communicated to other Commission services and senior managers for discussion and follow-up action, where appropriate (Step 5).

[5] European Environment Information and Observation Network (Eionet) for Forward Looking information and Services (FLIS). See: https://forum.eionet.europa.eu/nrc-flis

[6] https://environment.ec.europa.eu/research-and-innovation/science-environment-policy_en

After an initial pilot of the system in 2017-18 which focused on "Emerging environmental issues related to new technologies in the Urban environment" (where SCHEER participated and delivered a final opinion), FORENV is now running on an annual basis. SCHEER has also provided a scientific opinion on various annual FORENV exercises, namely on "Emerging issues at the environment-social interface", "Zero Pollution ambition for a toxic-free environment", "Emerging environmental issues due to EU and global demographic changes" as well as on "Emerging environmental and other issues impacting our ability to achieve a water-resilient Europe by 2050" and DG ENV would like to rely on the SCHEER's expertise again for the current 6th cycle (2023-2024). Below is a description of the focus area chosen for this current exercise:

Description:

Biodiversity loss is acknowledged as one of the biggest global threats of our time; in this context, reference is often made to an ecocide and "6th extinction wave" that we are witnessing. In the EU, a start has been made with addressing this crisis under the European Green Deal with the EU biodiversity strategy for 2030, including most recently the Nature Restoration Law. At global level the Kunming-Montreal Global Biodiversity Framework (GBF) has been adopted.

The first global assessment by the Intergovernmental Panel for Biodiversity and Ecosystem Services (IPBES) in 2019 has clearly demonstrated that nature and its vital contributions to people (e.g. food, water, renewable energy, ...), which together embody biodiversity and ecosystem functions and services, are deteriorating worldwide.

Knowledge on the direct ("changes in land and sea use; direct exploitation of organisms; climate change; pollution; and invasion of alien species") and indirect drivers of biodiversity loss (the underlying causes for the direct drivers such as production and consumption patterns or population dynamics) is building up.

However, in order to further develop the right policies that strengthen the EU and global resilience to these threats, it is important to take a foresight look at the rapid transformations that our societies and economies are currently undergoing and will undergo. These include climate change and its impacts, resource scarcity and the shift towards a circular economy or the changes in our agricultural system that are also linked to these. These may further impact (positively or negatively) biodiversity and ecosystems and bring opportunities as well as threats. A foresight exercise could qualify the trends and their expected intensity, while a more quantitative approach could be taken up in the future by other instruments upstream, such as the EU assessment report on biodiversity and ecosystem services planned for 2027.

We already see some emerging trends that lead to possible consequences for biodiversity and consequently ecosystem services, people's health, etc. The development of new technologies under the umbrella of synthetic biology, new genomic technics, etc is one area. On the policy side, the use of new tools, such as biodiversity credits, to incentivize economically the protection and restoration of natural ecosystems and biodiversity, are also under discussion. We also expect geopolitical developments to pose new threats to biodiversity and ecosystems, for example through the destruction of fertile lands by war in certain regions. Identifying the relevant emerging trends will help to identify blindspots: what we are not seeing, what we are ignoring or what we misunderstand. This work will help to underpin

future research activities and policy initiatives to protect and restore biodiversity and ecosystems.

Therefore, the following key research question is proposed: **What are the emerging environmental, societal, economic, geopolitical and technological developments that are largely ignored now, but could have positive or negative impacts on biodiversity, ecosystems and their services by 2050?**

This cycle's timing is as follows (to be confirmed):

- 200 relevant weak signals of change to be collected by end March 2024 (Step 1);
- In-person workshops to be scheduled for April/May where internal (EU) and external experts will identify 10 priority emerging issues concerning the topic "*biodiversity protection and ecosystem services"* by analysing and clustering the weak signals (Step 2);
- Between June and end-July 2024, the 10 emerging issues will be characterised by the FORENV Secretariat on the basis of scientific literature, to highlight in particular associated opportunities and risks (Step 3). The titles of the 10 emerging issues as well as a short description of each issue will already be available before end-July (normally in June) and communicated to the SCHEER at this stage. It is suggested to split the topics amongst the SCHEER and the EEA SC, as was already the case in some of the previous cycles.
- Between end-July and end-September 2024 SCHEER shall review the characterisation and produce its opinion about the emerging issues under its responsibility (Step 4);
- In October 2024, a final report and related communication outputs will be produced (Step 5).

2. Terms of reference

Within this process, SCHEER is asked to review the evidence provided through the characterisation (delivered by ENV), comment on and validate the outcomes, in particular the risks and opportunities identified and the levels of uncertainty and scientific consensus (step 4).

In doing so, SCHEER should consider a set of key questions, including:

- Is the emerging issue identified likely to have the risks and/or opportunities described, or also additional ones? And if so, which ones?
- In your view are there additional long-term development/s related to the issue that the issue description currently omits? If so please describe them briefly. Do these development/s pose additional risks and/or opportunities?
- Are the described expected implications (positive or negative) for the environment and human health plausible, including the expected time-frame of emergence?

- Can you assess each identified emerging issue on the basis of their potential or likely environmental and human health impact, by assigning an assessment of their impact as being: High; Medium; or, Low?

DG ENV will provide to SCHEER a characterisation of several emerging issues relating to *Emerging risks and opportunities for biodiversity protection and ecosystem services in the context of economic and societal challenges* by end-July 2024 for its validation. The number of characterisations will depend on the nature of the emerging issues identified in step 2 as it has been agreed to split the validation work between the SCHEER and the Scientific Committee of the EEA. The more health-related issues would be referred to the SCHEER whilst the more environmental issues would be taken care of by the EEA Scientific Committee. The split would be agreed in close cooperation and consultation between DG ENV, DG SANTE and the EEA.

3. Deadline

SCHEER is expected to provide its opinion by end September 2024/early October 2024.