



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 environmental, societal, economic and technological developments and other issues potentially impacting (i.e. having benefits, opportunities and threats to) our ability to achieve a water-resilient Europe by 2050”

Commission Department requesting the Opinion: Directorate-General for Environment

1. Background

Responding to the need identified in Priority Objective 5¹ 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 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.

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.

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.

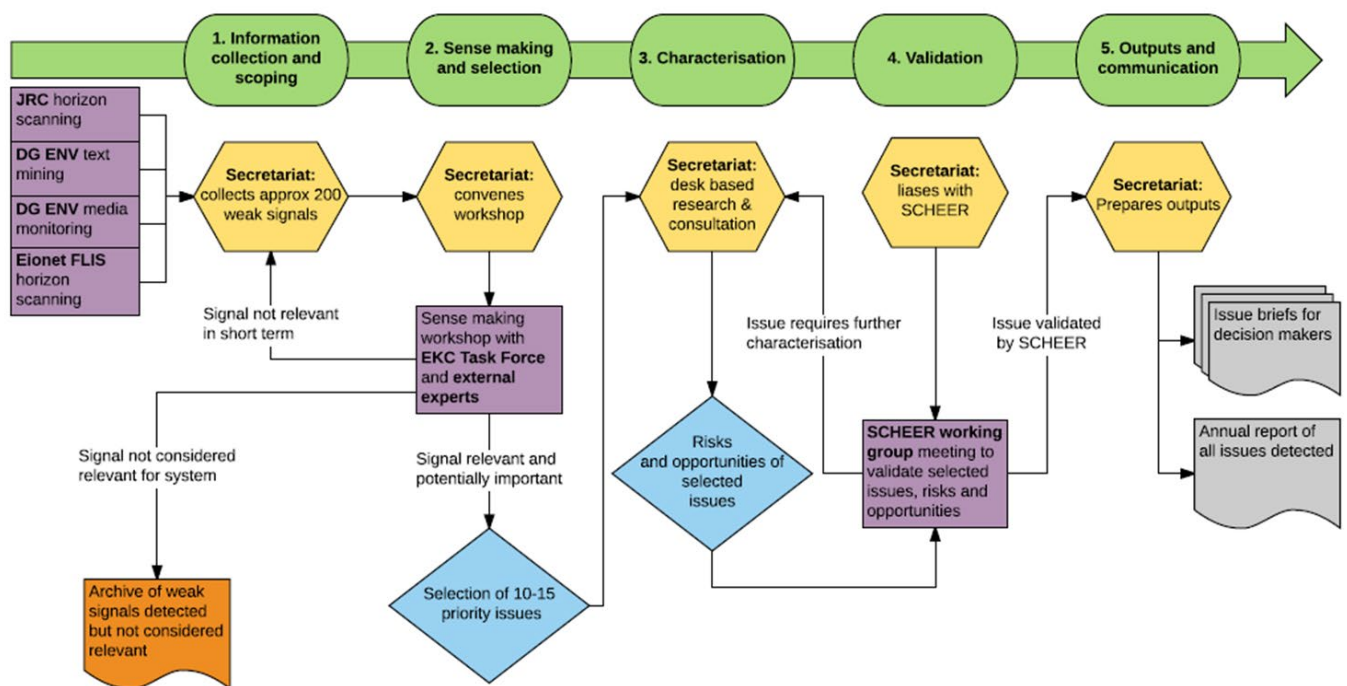
¹ Priority Objective 5 requests 'that (by 2020) the understanding of, and the ability to evaluate and manage, emerging environmental and climate risks are greatly improved'. See <http://ec.europa.eu/environment/action-programme/>

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 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 FLIS⁵. The Science for Environment Policy news alerts managed by ENV⁶ 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).

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” as well as on “Emerging environmental issues due to EU and global demographic changes” and DG ENV would like to rely on the SCHEER’s expertise again for the current 5th cycle (2022-2023). Below are the title and a description of the focus area chosen for this current exercise, which will finish in October 2023:

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

Topic: Which emerging environmental, societal, economic and technological developments and other issues may impact (i.e. having benefits, opportunities and threats to) our ability to achieve a water-resilient Europe by 2050?

Description:

Water management, particularly water quality, is a comprehensively regulated policy area in the EU. Increasing water scarcity and droughts call, however, for additional attention of policy makers to water quantity aspects of water management. While the Water Framework Directive (WFD) does not impose unambiguous requirements on water quantity, it does address water quantity in several ways. Water quantity is, for example, implicitly included in the definition of good ecological status for surface waters and explicitly in hydromorphological elements (i.e. flow regime). Furthermore, good quantitative status is required for groundwater, where Member States must ensure a balance between abstractions and recharge rates. The requirement of water pricing also aims to provide incentive signals for water users to use water resources efficiently. The recognition that water quality and quantity are closely related within the concept of ‘good status’ is fundamental in addressing water resources management challenges.

The EU has experienced extremely dry summers for 5 of the last 6 years, with significant damage throughout the economy (inland navigation, energy production, agriculture) and nature, with effects lasting well into the winter season and the next spring. A multitude of factors is behind the increased prevalence of water scarcity in Europe – droughts worsened by climate change, inefficient use of water (over-abstraction, over-use, over-allocation) combined with higher demand. Also, the modification of natural rivers to render them more directly useful for economic purposes and reduce flood risk, as well as draining agricultural land rather than retaining water inland play an important role. Climate projections suggest that water resource challenges will become much more widespread and severe across Europe in the coming decades. There will be increasing competition for scarce water resources, with potentially significant effects on economy, society and the environment.

In agricultural policy, quantity is a concern through a focus on availability and on more efficient water use. More recently the Water Reuse Regulation was adopted (implementation as of June 2023) which seeks to promote the uptake of reused water from waste water treatment facilities for irrigation in agriculture, where relevant. The Recast of the Drinking Water Directive (application started in 2023) seeks to reduce leakages and the proposal for the Industrial Emissions Directive revision aims at stimulating water efficiency and water reuse across the lifecycle of processes. The 2021 EU Climate Adaptation Strategy is the first more comprehensive plan to address the role of water across a number of areas.

In terms of water use, agriculture and energy are the most important sectors in the EU; moreover, the land used for agriculture is 38% of the total EU land. Therefore, it is clear that addressing water scarcity and drought also implies designing new climate-resilient and sustainable sectors such as agriculture, energy, industry and households. A more comprehensive holistic approach on water scarcity and drought, moving beyond the perspective of environment alone, is therefore needed. From an EU policy perspective this would imply enhanced cooperation, use of current policies and potentially targeted revision of instruments. Nature-based solutions, making use of natural resources and landscape features should be part of this.

To respond to the increasing drought and water scarcity in Europe, the EU could work towards enhancing its “water-resilience”: a more efficient and sustainable use of water resources across all seasons and sectors, to the point that the environmental, economic and social needs for water do not surpass water availability at any point in the year. To allow the development of pathways for such a water resilient EU by 2050 as well as testing plausible worst-case scenarios, it is important to identify opportunities and threats early on in current policies and in their future development, both at the EU and MS level.

Moreover, political, economic, technological and societal issues and trends will have an influence on water use, abstraction and valuation. But we don't necessarily know which trends have the most beneficial, which ones the most detrimental effect. Modelling (using JRC's capacities in that regard) is one tool that could be used to sketch out pathways.

As overall orientations for the elaboration of specific emerging issues, the following key research question is proposed: **Which emerging environmental, societal, economic and technological developments and other issues may impact (i.e. having benefits, opportunities and threats to) our ability to achieve a water-resilient Europe by 2050?**

This cycle's timing is as follows:

- 200 relevant weak signals of change to be collected by mid/end March 2023 (Step 1);
- In-person workshops scheduled between 24th and 28th April where internal (EU) and external experts will identify 10 priority emerging issues concerning the topic “*water-resilience in Europe*” by analysing and clustering the weak signals (Step 2);
- Between early June and end-July 2023, 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 in early 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 2023 SCHEER shall review the characterisation and produce its opinion about the emerging issues under its responsibility (Step 4);
- In October 2023, 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 environmental, societal, economic and technological developments and other issues regarding water-resilience in Europe* by end-July 2023 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 2023/early October 2023.