Poster ID: 4.02.P-Th443

Assessing risks to biodiversity from exposure to chemicals: findings of an ECETOC Task Force on the regulatory context

ABSTRACT / BACKGROUND

In accordance with **global efforts to reduce negative impacts on biodiversity**, the EU Commission has set **ambitious goals** for managing chemicals as one of the presumed influencing factors and aims to mitigate the entry and effects of chemicals in the environment. However, these goals are hindered by **unclear definitions and metrics for biodiversity as well as the challenge to efficiently link them to chemical regulation**. As quantitative links between biodiversity loss and chemical exposure for different taxa and systems are yet to be fully established, as well as the relative contribution of chemicals compared to other pressures on biodiversity like habitat loss from land-use change (Tilman et al. 2017, Semenchuk et al. 2022). The **European Centre for Ecotoxicology and Toxicology of Chemicals (ECETOC) initiated a Task Force (TF)** to address some of the listed challenges. The activities of the TF are structured in three topical subgroups, focusing on 1) EU chemical regulation and strategic documents, 2) Active EU commissioned research projects relevant to biodiversity, and 3) Definitions and metrics of biodiversity and currently used methodologies and approaches. Here we report on the **outcomes from the Task Force subgroup 1** focussing on EU chemical regulation and strategic documents, that looked into **regulatory context for considering biodiversity in chemical risk regulation**. A set of 42 Documents was selected from different sectors and further filtered as described in Fig. 1.

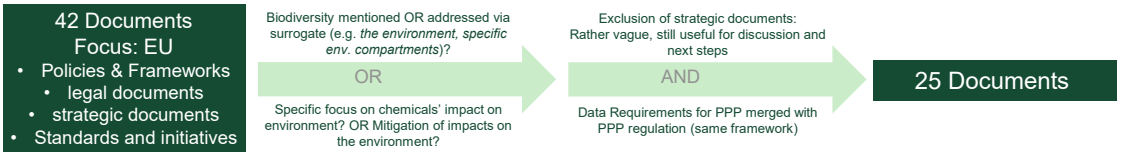

Fig. 1: Filtering process of documents for further evaluation

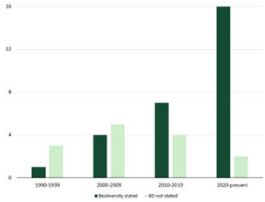

Fig. 2:The term Biodiversity in Regulatory and Policy documents

RESULTS

The **term „biodiversity"** is relatively young. The main definition used is **very broad** and largely follows the one outlined in the Rio Convention on Biodiversity (1992). Policy and legal documents slowly started picking up this term in the 1990s. Since then, its use has steadily increased (Fig.2). However, older documents generally address a **broad concept of „the environment"** sometimes specifying specific compartments, species or habitats. Therefore, this term is **interpreted as being inclusive for biodiversity**.

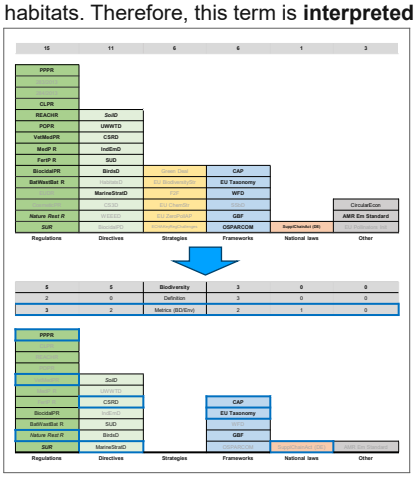

Fig. 3: Top: Document types and distribution of the starting set. Documents that were further in black letters. Bottom: Filtered set evaluated on info for biodiversity, i.e. use of the term, provision of a definition and metrics.

Out of the 42 starting documents, 25 were selected for further evaluation (Fig. 3) The main findings can be summarized as follows:

- The term biodiversity is gaining prominence, but it is still stated in only half of the documents (13)
- Definitions for biodiversity are rarely provided (5)
- Metrics for biodiversity or environmental assessment are provided in 6 and 3 documents, respectively.
- Metrics are often vague (habitat conditions, political indices, „good conditions") but become more precise (e.g., populations of surrogate species) when the chemicals are intended for use in the environment, or their release is anticipated. Examples for the latter are plant protection and biocidal products.

Technical Guidance Documents to the legal documents were not evaluated, however, some of these documenst are likely to provide more more precise metrics than the main legal text of regulations and directives.

Looking at mechanisms applied for regulation and risk management of chemicals it can be summarized that each document generally states several of these mechanisms (Fig. 4). The choice and combination of the mechanism is linked to the purpose and scope of the document. For most chemicals a release in the environment is not intended, therefore the focus is on mechanisms safeguarding no release, e.g. exposure avoidance and use instructions / use limitations.

Where potential pollutants are concerned, hazard and eventually risk assessment gain more focus. This focus becomes stronger where the release is intended or unavoidable.

In recent times, monitoring and financial mechanisms are increasingly stated. The latter include payments, reporting obligations and due diligence.

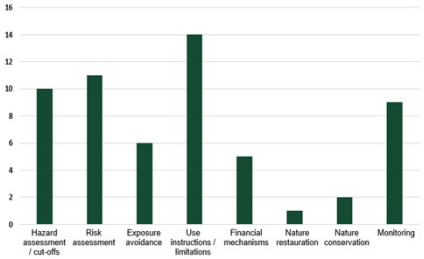

Fig. 4: Mechanisms of risk regulation and management

CONCLUSION AND NEXT STEPS

- **Definitions of biodiversity need to be specified for the purpose of different regulations to define operational protection goals and biodiversity metrics for risk assessments. The ecosystem service concept can provide a basis for this.**

➢ **Synthesize the outcomes of the three TF working groups to provide recommendations about how existing and developing biodiversity definitions and methodologies can be translated and adopted into the regulatory context, incl. considerations on spatial and temporal scales – to be further discussed in the TF workshop planned for 2025**

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