

Assessing risks to biodiversity from exposure to chemicals: findings of an ECETOC TF on current and future research directions in EU-commissioned projects

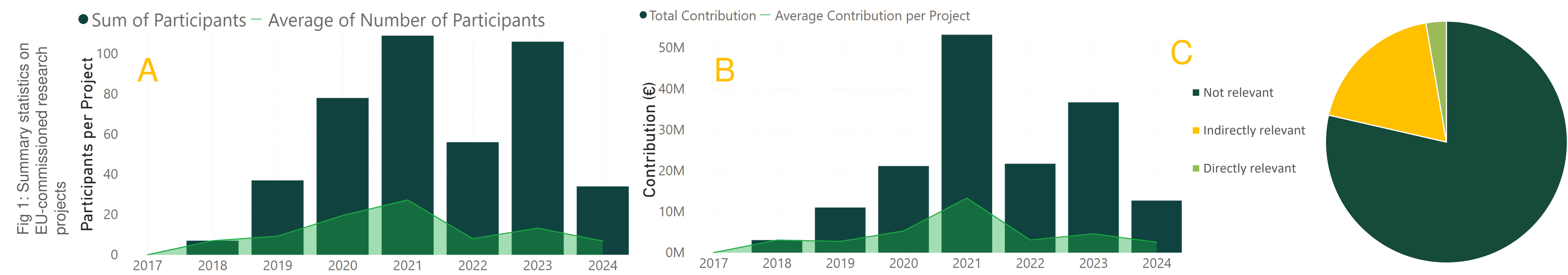
ABSTRACT / BACKGROUND

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**. Quantitative links between biodiversity loss and chemical exposure for different taxa/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** 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 the **outcomes from the Task Force subgroup 2** on how **new knowledge from EU-funded research can be leveraged to inform regulatory frameworks** as well as to identify research gaps that could become the scope of future funding calls.

RESULTS

We initially surveyed current EU-commissioned research projects to explore how new biodiversity knowledge can inform the development of frameworks for regulating the impacts of chemicals on biodiversity. Our focus was on **EU Horizon projects (CORDIS)** in relevant European databases, searching for projects initiated since 2017 with the keyword "biodiversity".

This first search revealed >1100 projects started since 2017. We thus further focused by **filtering for both “biodiversity” and “chemicals” as well as sorted the projects into 3 main categories** related to the TF objective of “Potentially informative for regulatory frameworks for the assessment of chemicals for effects on biodiversity”. This resulted in 983 projects (~78%) considered not relevant, 234 (~19%) indirectly relevant (i.e., suitable to e.g., inform metrics, protection goals, risk management options, policies for biodiversity impacts from chemicals...), and 34 (~3%) as directly relevant.



Biodiversity is a heavily researched topic, but perhaps not in the way necessary for regulatory actions:

- Descriptions of the **34 remaining directly relevant projects** revealed that none of them focusses explicitly on disentangling the diversity of aspects to be considered to address biodiversity in chemical regulation; however, all of them include one or more of these aspects as project parts (e.g., research on specific habitats (soil, marine, agricultural areas), chemicals (pesticides, pharmaceuticals) or questions on temporal and spatial scales.
- Only very **recent projects have started to include system- and landscape-level questions**.
- Current regulatory concepts and data requirements for chemicals are not consistently reflected in EU-funded research projects and the **translation of this research into actionable regulatory recommendations is often lacking**.
- Key observation: Detailed content information on all EU-funded projects is very challenging to find, consolidate, and analyze due to the **absence of a centralized and FAIR data source**. While CORDIS contains much information (e.g., involved institutions, funding, timelines) especially direct links to full proposal texts, current status, and most importantly outputs & findings are not systematically captured.

RECOMMENDATIONS & NEXT STEPS

The EU is making tremendous investments into research related to better understanding of biodiversity and its influencing factors. **Harnessing this new knowledge and research to inform regulatory frameworks** could become the topic of a call or commissioned **meta-analyses**. Also, the assessment of cross-links between regional frameworks and regulations and their global implications could become an additional research focus area in EU Horizon projects, as efforts to effectively address the challenges of biodiversity loss and ecological imbalance need to be coordinated globally and regulatory measures implemented that avoid e.g. exporting of environmental footprints.

One of the key next steps for this ECETOC Task Force is the **organization of a multistakeholder workshop in 2025**, for which a deep dive into the 34 identified projects will be conducted to be used as input from this subgroup.

Poster authors:

Anja Gladbach (Bayer AG, DE), Dave A. Bohan (INRAe, FR), Marta Baccaro (DG-JRC, IT), Sian Ellis (Corteva, UK), Franziska Enzmann (Henkel, DE), Jutta Hellstern (F-Hoffmann-La Roche, CH), Emily Garman (NiPERA, US), Sarah A. Hughes (Shell Global Solutions (US) Inc, USA), Philippe Lemaire (TotalEnergies, FR), Jan-Dieter Ludwigs (Rifcon, DE), Lorraine Maltby (University of Sheffield, UK), Christoph Mayer (BASF, DE), Anna-Maija Nyman (ECHA, FI), **Hans Sanderson (Aarhus University, DK)**, Simran Sandhu (Unilever, UK), Aaron Stoler (ExxonMobil, USA), Marco Thines (Senckenberg Biodiversity and Climate Research Centre, DE), Johannes Tolls (Henkel, DE), Nika Galic (Syngenta AG, CH)

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Contact: info@ecetoc.com