Hazardous Substances Advisory Committee (HSAC)

Meeting Minutes – 45th HSAC Meeting

20th March 2025

Item 1 Welcome by the chair and approval of the draft agenda

1.1 The Chair, Professor Iseult Lynch, welcomed all attendees to the meeting (see Annex A).

1.2 The draft agenda was approved with no additional items added under any other business. No conflicts of interest were declared with items on the agenda.

Item 2 Approval of the minutes from the 44th meeting, and review of actions - Iseult Lynch, Chair

2.1 The minutes from the 43rd meeting have been actioned and accepted without objections.

- **HSAC introducing a mentoring scheme for committee members**
  - Yasmin confirmed that this is something they are considering and will feedback at the next meeting
- **Follow up discussion on the impact of unexploded munitions during the next informal HSAC catch up**
  - This is ongoing Yasmin will feedback at the next meeting
- **HSAC members to identify any colleagues that they are aware of who are already working with Japanese academics**
  - Julia has not received anything. Iseult asked for this to be actioned this week
- **The secretariat were to have an initial conversation with DSIT on the proposed contents of the next NAMs paper and they were to share the meeting notes**
  - This action item is completed
- **HSAC to finish inputting into the chemicals prioritisation, structured feedback**
  - This item was actioned

Item 3 Forward look, upcoming meeting topics & commissions in progress – Yasmin Wright, Secretariat

3.1 Yasmin Wright presented upcoming meeting topics and gave an update on the newsletter which is yet to be published.

Item 4 Current and Future Strategic Evidence Work: Environmental Impacts of Chemicals – Julia Sussams, Evidence Strategy Lead, Chemicals Science & Environmental Impacts Team

4.1 Julia Sussams presented the strategic priority areas for the Environmental Impacts of Chemicals team and asked for input from the HSAC on whether these were the right areas of focus.

4.2 Susan Chilton acknowledged that the Defra funded research on valuing environmental risk from chemical pollution presented at July's HSAC was a good framework and should be further developed rather than starting from scratch. She highlighted that the framework has limitations and whilst work is underway to resolve the scientific uncertainty, there was also uncertainty in the economic and social valuations which will persist even if the scientific uncertainty is resolved.

- **Susan to follow up with Julia to discuss economic uncertainty**

4.3 Jason Weeks highlighted the significant investment interest in biodiversity. It costs approximately £850 billion annually to maintain and restore biodiversity, but there is a £750 billion annual shortfall. Most funding comes from governments, with little to no investment from corporate entities. A major gap is the lack of valuation and understanding of chemical impacts on biodiversity and related pressures, which makes the issue complex. Addressing this will require engagement from financiers, banks, and broader collaboration to attach numbers and valuations to chemicals, biodiversity, and climate change impacts.

4.4 John Colbourne emphasised the importance of a cross-Council application process, co-sponsored by NERC (Natural Environment Research Council) and ESRC (Economic and Social Research Council), to better address the multifaceted challenges of science. He suggested that more focus is needed on social, legal, and regulatory dynamics, which are often overlooked. John recommended that these were integrated into the future evidence work.

4.5 Iseult Lynch emphasised the importance of focusing on developing processes and workflows for handling data that can be applied universally to different chemicals and questions, rather than being limited to specific use cases. While specific examples, such as PFAS, might help demonstrate the tools' utility, the ultimate aim should be to create versatile, chemical-agnostic tools. These tools should:

- Integrate heterogeneous data effectively.
- Address uncertainty evaluation and propagation.

- Work across various data types and sources, avoiding a "case-by-case" approach.

4.6 The PARC (Partnership for the Assessment of Risks of Chemicals) initiative is already working on developing such tools. The goal is to ensure these tools can generalise insights from case studies, becoming broadly useful in policymaking and other applications.

4.7 Stewart Owen emphasised the importance of leveraging existing data while identifying gaps to connect it effectively to policy objectives. He suggested prioritising this approach to craft a compelling narrative that aligns data with policy goals, highlighting what is available, what is needed, and the desired policy outcomes. He also mentioned utilising institutions like the Alan Turing Institute, which has a focus on environment and sustainability, to strengthen the connection between databases and expertise in areas such as ecotoxicology and chemicals.

4.8 Ioanna Katsiadaki highlighted the progress made in biological effects monitoring in marine and freshwater environments within the UK:

- Marine Strategy Framework Directive: The UK has long monitored biological effects under this directive, implementing one of the best programmes globally, with publicly available data reported in international datasets.
- Water Framework Directive: The biological effects of contaminants are monitored in freshwater and transitional waters. Despite high pressures, the data shows some positive outcomes, which suggest lessons can be learned from current practices.
- European Funding & Collaboration: The UK participates in European-funded initiatives, such as CEFAS' project "Contrast". This collaboration aims to refine biomarkers and biological effect monitoring tools for chemicals in the marine environment, strengthening international efforts.

Item 5 Strategic Evidence Workstream: Understanding Biological Effects of Chemicals – *Keegan Schroeder, Chemicals Science & Environmental Impacts*

5.1 Keegan Schroeder presented a paper on chemical effects on wildlife to the HSAC along with David Rymer from the Defra Biodiversity team.

5.2 Jason Weeks highlighted the complexity of global pollution monitoring and the importance of bridging gaps between scientific data, regulatory frameworks, and policy decision-making. He highlighted the Global Pollution Indicator: The United Nation’s programme to produce a single global pollution indicator at a country-by-country level, which is a significant challenge.

5.3 Jason also raised questions about data sufficiency and gaps. He suggested focusing on utilising existing biomarkers, which are numerous, before pursuing emerging biomarkers. He identified a disconnect between data collection and its application in policymaking, particularly regarding the acceptability and reliability

of biomarker-derived datasets for regulatory decisions. He highlighted limitations within existing legislation, such as veterinary medicine regulations which can mandate harmful testing practices. He emphasised the need for flexible regulatory systems to accommodate newer technologies like biomarker testing.

5.4 John Colbourne shared insights derived from the "PrecisionTox" project, which examines species read across by considering toxicity and evolutionary perspectives. He offered ideas across three main areas:

- Redefining Hazard Classes: Emphasising the need for hazard classifications that focus on biodiversity, such as "biodiversity loss" as a hazard class, to influence environmental regulations effectively
- Identifying Keystone (Sentinel) Species: Advocating for leveraging technologies like 'omics and eDNA barcoding to evaluate keystone species (critical ecological indicators) instead of traditional surrogate-based approaches.
- Utilising Biodiversity and Data Innovations: Highlighting the potential of initiatives like the Barcode of Life and the Global Biodiversity Information Facility (GBIF) to guide protection goals. He proposed scenario-based risk assessments and prospective regulatory approaches, aligning with climate adaptation strategies.

5.5 John concluded with examples, including endocrine disruptors and pesticides, to illustrate how biomarkers and evolutionary insights could enhance environmental safety evaluations. He expressed willingness to collaborate on developing these concepts further.

5.6 Stewart Owen highlighted that a UK-wide digital twin would enhance environmental monitoring and chemical mixture analysis. This could help with prioritisation by layering existing databases over a digital twin—mapping water sources, chemicals, and other relevant data—organisations could pinpoint high-risk mixtures and/or areas requiring focused attention. This approach could help predict unmeasured river conditions and missing data points, leading to a more precise understanding of chemical sources, including runoff, down-the-drain substances, and tyre-related pollutants.

5.7 Laura Carter acknowledged the comprehensive introduction of priority research streams. She stressed the importance of incorporating biomarkers and effects-based monitoring for terrestrial chemicals beyond pesticides to ensure a more comprehensive approach.

Action

- **HSAC to provide written responses to Keegan's questions.**

Item 6 Discussion: Next HSAC paper on New Approach Methodologies – HSAC, led by Iseult Lynch

6.1 Iseult Lynch presented the six case studies prepared by the HSAC. It was agreed that the HSAC would write up three of these case studies to be sent to DSIT. Anthony Holmes confirmed that the case studies should only be 100 words and, where possible, the case studies should be UK focussed.

- **HSAC to write up three 100-word case studies on NAMs.**

6.2 The next HSAC opinion piece will focus on NAMs policy.

6.3 Julia Sussams stressed that it is important that these be aligned with the work the Office for Life Sciences is currently undertaking and work underway by the NC3Rs (National Centre for the Replacement, Refinement and Reduction of Animals in Research). She asked if the Office for Life Sciences would be able to provide key points in their work that could be used to guide the paper development.

6.4 Iseult Lynch emphasised that the follow-up HSAC report will incorporate input from the Food Standards Agency, aligning with their roadmap to ensure coherence and synergy between the reports.

6.5 John Colbourne highlighted that the paper will serve as a broad exploration of how NAMs can be applied to replace or reduce current practices. It aims to identify scientific limitations and barriers to their adoption to understand why NAMs are not yet widely implemented.

6.6 It was agreed that the next steps would be a brainstorming session before developing an initial plan. This plan will be shared with the HSAC for feedback, before being circulated more widely to key groups, including the Committee on Toxicology, DSIT, Food Standards Agency, and others. The goal is to have this work completed by the end of the year.

Item 7 **Summary of recent CPHW work on Microplastics –** ***Julia Sussams***

7.1 Julia Sussams presented on the Defra research project on an *Option Appraisal for Intentionally Added* Microplastics.

7.2 Laura Carter highlighted the differences in tonnes for use in emissions across various scenarios, including detergents, maintenance, medicinal products, and agriculture. She noted that similar emissions levels across these categories suggest that targeting both the source and usage could significantly impact overall emissions.

7.3 Laura also raised a question about the mitigation measure of reducing sludge to land. Her key point was to explore whether reducing sludge to land could have additional environmental benefits beyond its intended microplastic mitigation. Julia stated that quantification of the co-benefits was not possible in the report, so the issue was discussed qualitatively.

Item 8 Impact of nano and microplastics on soils – Catriona Willoughby, R&D Fellow, Defra Soils Team

8.1 The impact of nano and micro plastics on soils was presented to the HSAC by Catriona Willoughby.

8.2 Laura Carter asked whether the effects of various types of plastic—such as fibres, particles, and fragments—were considered in the research. She also asked whether laboratory-based trials, including hydroponic studies, provided enough understanding to make meaningful extrapolations to field-scale consequences. She emphasised the complexity at the field scale due to factors like management practices and co-contaminants.

8.3 Alice Wilson McNeal questioned whether it is realistic to establish definitive thresholds for microplastics in soils that would indicate whether microplastics cause harm. She highlighted the complexity of the issue, pointing out that microplastics come in various forms (fragments, fibres, beads, and films), may or may not have biofilms, are made of different polymers, and can carry diverse chemicals. These variables make it challenging to adopt a threshold-based approach.

Item 9 Emerging evidence – HSAC members

9.1 Jason Weeks raised the need to strengthen the group's efforts in three interconnected areas: 1) adopting a "One Health" perspective to address the interplay between human, animal, and environmental health, which is currently fragmented; 2) integrating horizon scanning to anticipate future challenges and prioritise UK issues for international discussions; and 3) enhancing cross-departmental communication within DEFRA and across committees to foster knowledge-sharing and collaboration. He suggested delving deeper into these ideas to improve the group's effectiveness.

9.2 Julia Sussams informed the committee that the REACH work programme for 2024/25 has been published on the HSE website, highlighting restrictions at advanced stages, such as lead in ammunition, and areas in earlier scoping stages, including firefighting foams and flame retardants. She mentioned that the policy group working on flame retardants will send follow-up questions via email for further consideration.

9.3 Iseult Lynch pointed out that the UK's latest National Biodiversity Strategy and Action Plan, published in February 2025, includes Target 7, which commits to reducing pollution to levels that do not harm biodiversity. However, the plan does not present any new evidence to support this commitment—it simply acknowledges the target.

Item 10 AOB

10.0 No AOB

End of meeting – 5pm

ANNEX A

ATTENDANCE LIST

HSAC:

- Iseult Lynch
- Laura Carter
- Susan Chilton
- John Colbourne
- Stuart Harrad
- Stewart Owen
- Jason Weeks
- Kevin Jones

Secretariat:

- Yasmin Wright
- Julia Sussams
- Iqra Raja

Defra Policy Officials

- Marc Casale (Deputy Director, Chemicals, Pesticides and Hazardous Waste)
- Keegan Schroeder (Evidence and Analysis Hub, Chemicals, Pesticides and Hazardous Waste)
- Ussama Mohyuddin (Evidence and Analysis Hub, Chemicals, Pesticides and Hazardous Waste)
- Ed Latter (Chemicals Policy Team, Chemicals, Pesticides and Hazardous Waste)
- Catriona Willoughby (R&D Fellow, Soils)
- David Rymer (Wildlife)

Other Government Department and Agencies

- Ovnair Sepai (UKHSA)
- Olivia Osborne (FSA)
- Ioanna Katsiadaki (CEFAS)
- Anthony Holmes (Office for Life Sciences)
- Graeme Shaw (Natural England)
- Patrick Shannon-Hughes (Natural England)
- Alice Wilson McNeal (Environment Agency)

External Stakeholders

- Roger Pullin (Chemical Industries Association)
- Chloe Topping (ChemTrust)
- Stephanie Metzger (RSC)
- Charlie Stevenson (Cruelty Free International)
- Mary Aiken-Wood (BPF)
- Camilla Alexander-White (RSC)

Devolved Governments

- Aoibhinn Corrigan (Department of Agriculture, Environment & Rural Affairs, Northern Ireland)
- Sarah Jane Murphy (Department of Agriculture, Environment & Rural Affairs, Northern Ireland)
- Dan Merckel (Scottish Government)