

Webinar #1

Introducing Safe and Sustainable by Design and the GFC in the consumer electronics sector

Series “Implementing the Global
Framework on Chemicals (GFC)
through Safe and Sustainable
Innovation: Global Perspectives
and Practice”

Webinar Report
16 April 2026

Introduction

The Global Framework on Chemicals (GFC), adopted in 2023, represents a comprehensive multi-stakeholder commitment to prevent or minimize harm from chemicals and waste while supporting sustainable development. A key dimension of the GFC is its emphasis on innovation—particularly the need to integrate safety and sustainability considerations across the entire lifecycle of chemicals, materials, and products.

In this context, the International Sustainable Chemistry Collaborative Centre (ISC3), the Inter-Organization Programme for the Sound Management of Chemicals (IOMC), and the United Nations Institute for Training and Research (UNITAR) launched a webinar series aimed at translating high-level policy commitments into practical implementation pathways.

The series focuses on Safe and Sustainable by Design (SSbD) and related global approaches as key enablers of GFC implementation. These approaches promote early-stage decision-making to reduce hazardous substances, improve resource efficiency, and avoid regrettable substitutions, particularly in high-impact sectors such as consumer electronics.

Webinar #1 served as an introductory session, establishing the conceptual foundations of the GFC and SSbD while illustrating their application in the consumer electronics sector through policy insights and industry practices. Specifically, the session aimed to:

- Present key elements and targets of the GFC relevant to innovation and chemicals management;
- Introduce the SSbD framework and its linkages with GFC implementation;
- Illustrate practical applications of SSbD through industry examples;
- Highlight enabling conditions, challenges, and opportunities for implementation;
- Strengthen alignment with the Electronics Sector Implementation Programme under the GFC.

Summary

The 1h 30min session took place on 16 April 2026 and brought together policy experts, technical specialists, and industry practitioners to bridge the gap between global frameworks and real-world implementation.

The opening remarks highlighted the urgency of advancing safer and more sustainable chemistry under the GFC. Speaking on behalf of the ISC3, Christian KOLBE (Director of Innovation & Sustainability) emphasized the central role of chemistry in modern life and the need to balance its benefits with sustainability. He presented ISC3 as a platform for collaboration across sectors and stressed that progress depends on dialogue and practical implementation. The webinar series was framed as a space to translate high-level frameworks into action, starting with the consumer electronics sector. Participants were encouraged to apply the insights gained to advance safe and sustainable innovation in their work.

The policy segment presented by Kay Williams (GFC Secretariat) linked the webinar to the broader objectives of the GFC, highlighting how its targets support safe and sustainable innovation in sectors such as consumer electronics. Emphasis was placed on key targets (D1, D2, D4 and D6) related to innovation, substitution of hazardous substances, and sectoral implementation. The intervention also stressed the

importance of partnerships and multi-stakeholder engagement to translate the framework into practice, positioning the webinar series as a contribution to advancing implementation and preparing for the first International Conference of the GFC in 2026.

The SSbD presentation (Leader, IRISS International SSbD Community) introduced it as a life cycle-based, pre-market approach to developing chemicals and materials that minimize risks to health and the environment. The speaker outlined its evolution into an iterative framework integrating safety and sustainability throughout the innovation process, emphasizing early design decisions, traceability, and multidisciplinary collaboration. Strong links to GFC objectives were highlighted, particularly in preventing harmful impacts and promoting safer alternatives, alongside key challenges such as data gaps, capacity building, and the need for shared tools and cooperation to support implementation.

Industry contributions demonstrated how these principles are being applied in practice. Examples included: identification and substitution of priority hazardous chemicals in electronics manufacturing processes; development of training systems to reduce worker exposure; adoption of circular design principles, including reuse of materials and reduction of hazardous inputs; use of standards and collaborative platforms to align stakeholders across value chains.

The panel discussion highlighted both progress and ongoing challenges in SSbD and related frameworks in the electronics sector. While regulatory and market drivers are accelerating the shift toward safer chemicals, key barriers include limited availability of alternatives, high costs and time for process changes, and complex global supply chains. Transparency and data availability remain critical challenges, driving the development of new tools and platforms. Practical examples, such as product-as-a-service models, showed how circular approaches can be scalable when aligned with business incentives. The discussion also underscored the role of digital tools like product passports and the need for expanded training across the value chain to support safer practices and systemic change.

Agenda

The session followed a structured agenda with the following segments:

2:00 – 2:10 PM	Welcome and Opening Remarks	Sofia Schlezak (UNITAR) Christian Kolbe (International Sustainable Chemistry Collaborative Centre, ISC3)
2:10 – 2:25 PM	The Global Framework on Chemicals: key elements and relevant targets for the purpose of this Series	Kay Williams (GFC Secretariat)
2:25 – 2:40 PM	The EU Safe and Sustainable by Design framework and the IRISS International SSbD Community	Emma Strömberg (IVL) and Lya Soeteman-Hernandez (RIVM) - IRISS (International Ecosystem for Accelerating the Transition to Safe-and-Sustainable-by-Design materials, products and processes)
2:40 – 2:50 PM	Questions and Answers	All
2:50 – 3:20 PM	Panel discussion: Applying SSbD in Consumer Electronics: From Design Choices to D6 Implementation	Moderator: Minseo Ju (UNEP) Panellists: Benjamyn Marks (Responsible Business Alliance, RBA), Pamela Brody-Heine (Clean Electronics Production)

		Network, CEPN), Vera Mustafina (Center Cooperation for Sustainable Development - CSD Center- in Kazakhstan)
3:10 – 3:20 PM	Questions and Answers	All
3:20 – 3:30 PM	Interactive activity and Final Remarks	Sofia Schlezak (UNITAR)

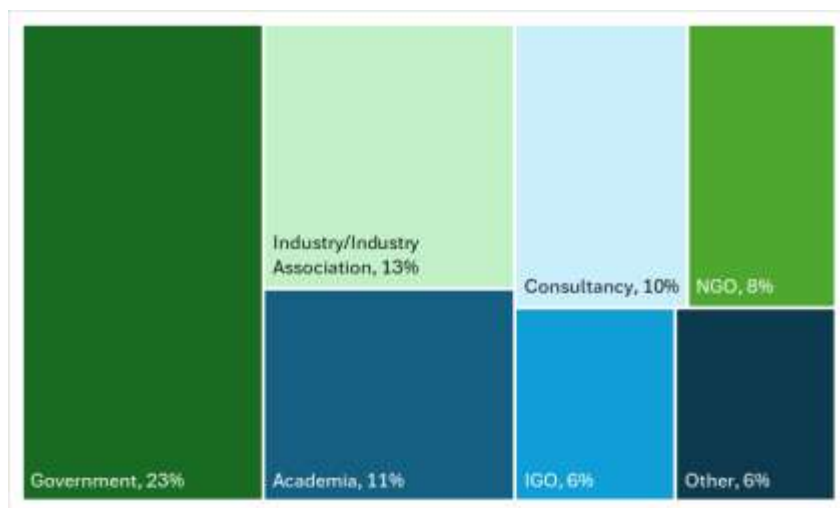
Resources

The resources for this session (flyer, presentations, satisfaction Survey, recording) are available in the [IOMC Website](#).

Attendance breakdown and representation

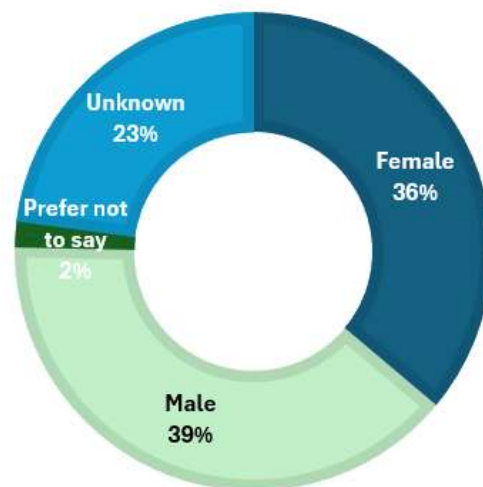
Attendees in total: **227¹**.

SECTORS

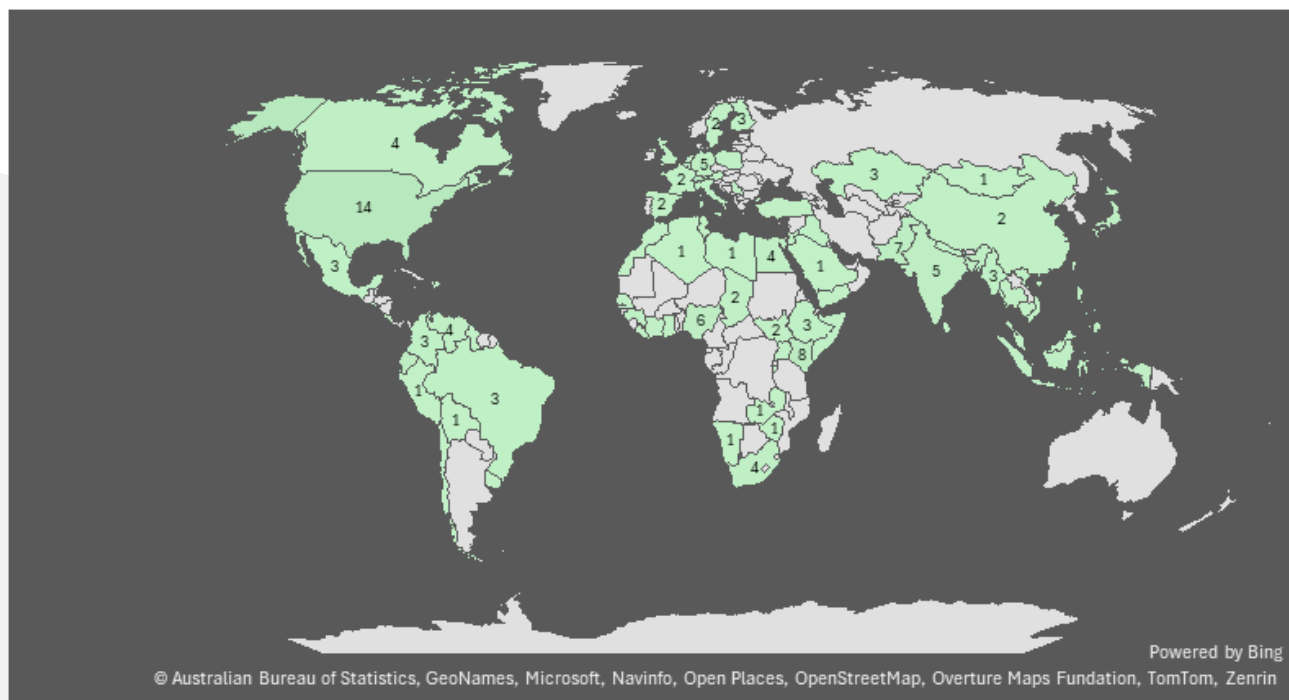


Participants represented a highly diverse and multidisciplinary audience: policymakers, regulators, industry leaders, consultants, researchers, and academics, alongside students and early-career professionals.

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¹ 141 stayed for more than 60 minutes.



Questions received and answered

The Q&A session provided an opportunity for participants to engage directly with speakers on practical aspects of implementing Safe and Sustainable by Design (SSbD) and the Global Framework on Chemicals (GFC), particularly in the context of the consumer electronics sector. Overall, the discussion highlighted that while significant progress is being made in advancing SSbD and GFC implementation, further efforts are needed to address data gaps, strengthen capacity, and enhance collaboration across sectors and regions.

Q: Implementation in resource-constrained contexts: Participants raised questions on how SSbD and GFC approaches can be operationalized in developing countries and for small and medium-sized enterprises (SMEs), particularly in relation to access to funding.

Response: Speakers noted that while the GFC Fund provides some support, it remains limited and highly competitive, with a focus on high-impact and regional initiatives. It is not currently well-suited to small-scale or early-stage projects. However, ongoing efforts are exploring complementary financing mechanisms, including engagement with development banks and blended finance approaches. In parallel, support structures such as innovation incubators and stronger knowledge transfer from large corporations to smaller actors were highlighted as key enablers to accelerate uptake.

Q: Metrics and monitoring of SSbD: Participants expressed interest in understanding how to measure and monitor the impact of SSbD approaches.

Response: A stepwise and pragmatic approach was recommended. Initial implementation should rely on qualitative assessments focusing on key parameters such as resource use, energy, water, and waste. As

data availability improves, these can evolve into semi-quantitative and eventually quantitative metrics. Emphasis was placed on identifying priority challenges within value chains and advancing through incremental improvements rather than seeking comprehensive measurement systems from the outset.

Q: Use of artificial intelligence and data: Participants also explored the role of emerging technologies, particularly artificial intelligence (AI), in supporting SSbD implementation.

Response: AI was identified as a promising tool, particularly for early-stage screening of chemical hazards and supporting innovation processes. However, its application remains constrained by limited trust, especially among regulators, due to the “black box” nature of many AI systems. Building trust through collaboration between scientific, regulatory, and industry communities was emphasized as essential. The flexibility inherent in innovation stages presents an opportunity to integrate AI-based approaches while accepting a degree of uncertainty.

Q: Role of international organizations: Questions were raised regarding how international organizations can better support local implementation efforts.

Response: Speakers emphasized the importance of working through national focal points and strengthening linkages at the country level. These focal points play a critical role in translating global frameworks into national action and connecting with local institutions. Capacity building, stakeholder coordination, and the establishment of innovation hubs were identified as key mechanisms to bridge global guidance with local implementation needs.

Q: Technical barriers to SSbD integration: Participants sought to better understand the main technical challenges faced by companies integrating SSbD into existing systems.

Response: Key challenges include limited transparency across complex global supply chains, difficulties in obtaining full material disclosure, and constraints related to confidential business information. These challenges hinder the ability of companies to assess risks and identify opportunities for safer alternatives. Addressing data gaps and improving standardized approaches to information sharing were identified as priorities.

Q: Barriers to substitution of hazardous chemicals: A related question focused on challenges associated with scaling substitution efforts.

Response: Speakers highlighted several constraints, including the limited availability of viable safer alternatives, the time and cost required to modify production processes, and the complexity of multi-tier supply chains. It was noted that substitution is not always a simple replacement process and requires coordinated efforts across the value chain. Stronger market signals and collaboration with chemical suppliers were identified as critical to accelerate progress.

Q: Scalable good practices: Participants were interested in identifying concrete examples that could be replicated.

Response: Product-as-a-service business models were presented as a promising example. By shifting from ownership to service provision (e.g. leasing or outsourcing IT equipment), companies can extend product lifecycles, improve maintenance and recycling, and enhance resource efficiency. The scalability of such models depends on robust operational systems, economic viability, and integration across the full product lifecycle.

Q: Digital product passports and data systems: The role of digital tools in enabling SSbD was also discussed.

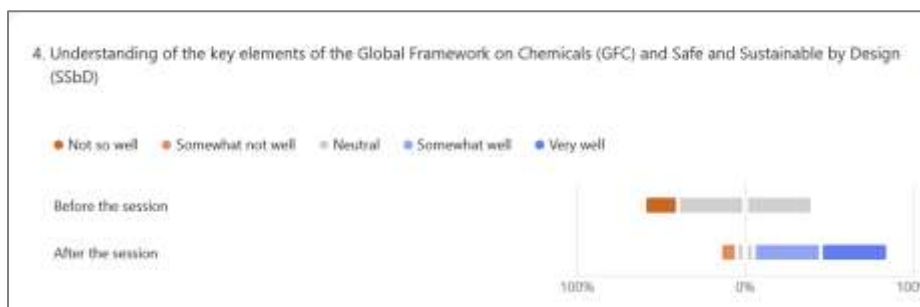
Response: Digital product passports were identified as a key enabler for improving traceability and transparency across product lifecycles. They support data integration from raw material extraction through to end-of-life management. However, their implementation is still evolving, with significant challenges related to data availability, standardization, and interoperability.

Q: Training gaps across the value chain: Finally, participants raised concerns about capacity building beyond manufacturing contexts.

Response: Existing training initiatives are largely focused on manufacturing processes, although some elements may be transferable. However, speakers acknowledged that recycling and waste management contexts present specific challenges that are not yet fully addressed. Expanding training programmes to cover these segments of the value chain was identified as an important next step.

Survey results and insights²

1. The session was very well received overall, with 89% rating it **Excellent/Very good** and 11% **Good**.
2. Survey results indicate a **clear improvement in participants' understanding of the key elements of the GFC and SSbD and enabling conditions for their implementation**. While responses before the session were more dispersed, with a notable share indicating neutral or limited understanding, **post-session results show a strong shift toward “somewhat well” and “very well,”** reflecting the effectiveness of the webinar in strengthening knowledge on these topics.



² 28 responses by April

3. The main takeaway is that effective chemicals management in the electronics sector must begin at the **design stage**. Participants also emphasized the importance of **standards, policies, collaboration, and practical examples** to translate these frameworks into real-world implementation and improved waste management practices. A strong majority of participants (86%) indicated they are likely to apply or promote an SSbD-related approach in the next 12 months, with over half (54%) reporting they are very likely to do so.
4. **Next suggested topics included:** Practical implementation of chemical safety and sustainability frameworks (SSbD/GFC), including risk assessment, GHS, AI applications, and e-waste management, with a focus on real-world and developing country contexts.
5. Shareable link to the survey results:
<https://forms.cloud.microsoft/Pages/AnalysisPage.aspx?AnalyzerToken=SD26c0q8K3J2Om2v2hTkHU7F0ykBkQyP&id=7rTNQbhFk0aAadzJ3B6UzOjtc7jiKt1MqGoOLsje4u5UMDZPN1RWVDRBNjBLQk9UVzJMSUFKTU1NMC4u>

Next steps

- **Future Webinars:** The Webinar #2, to be held in July 2026, will focus on the “**Sustainable Pharmaceuticals**”. Another webinar will be held in September 2026.
- **Website Updates:** Resources from the session will be uploaded to the [IOMC Website](#), including presentations, the recording, and responses to outstanding questions.

Comments? Questions?
Email us: cwm@unitar.org