Roundtable Report

Embedding POPs Data Management: Information Systems at National and Regional Levels

28 October 2025

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Introduction

Persistent organic pollutants (POPs) are hazardous chemicals that remain in the environment for long periods, accumulate in living organisms, and pose risks to human health and ecosystems. Under the Stockholm Convention, countries are required to take measures to reduce and eliminate the production, use and release of POPs. Reliable, accessible and interoperable data systems are essential to track progress, strengthen evidence-based policymaking, and inform the development and update of the National Implementation Plans (NIPs).

To support this objective, the Green Growth Knowledge Partnership (GGKP), under the GEF-funded and UNEP-led Global NIP Update project (GEF ID 10785), convened a virtual roundtable on 28 October 2025 that focused on strengthening POPs data management systems at the regional and national levels. UNEP's Knowledge and Risk Unit (KRU), within the Chemicals and Health Branch, presented two key knowledge products developed under the project that outline fundamental elements of effective POPs data management infrastructure and strategies.

Building on this, regional executing agencies of the project showcased concrete examples of data management systems in practice. RECETOX-Stockholm Convention Regional Centre in the Czech Republic presented the Global Monitoring Plan (GMP) Data Warehouse as a global repository for POPs monitoring data, alongside its national Global Environmental Assessment and Information System (GENASIS) system and integrated Pollution Register (IRZ), which is established under the Kyiv Protocol on Pollutant Release and Transfer Registers (PRTR). The Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean (BCRC-Caribbean) showcased its Persistent Organic Pollutants Regional Information System (POPs-RIS) platform, which is currently under development.

Through presentations and discussions, the roundtable examined regional examples of POPs data management and how strengthened data systems can better inform NIP updates, regional reporting, and policy decision-making. The event provided a platform for exchanging experiences, identifying opportunities for collaboration among regional centres, UNEP and countries, and reflecting on the medium- and long-term sustainability of POPs data management systems.

Speakers

- Carla Valle-Klan, Programme Management Officer, Basel, Rotterdam and Stockholm (BRS) Conventions Secretariat, UNEP
- Mihaela Claudia Paun, Officer-in-Charge, Head of KRU, UNEP
- Kateřina Šebková, Director, RECETOX
- Dana Lewis, Project Execution Officer II, BCRC Caribbean
- Moderator: Anastasiya Buchok, Senior Project Associate, GGKP

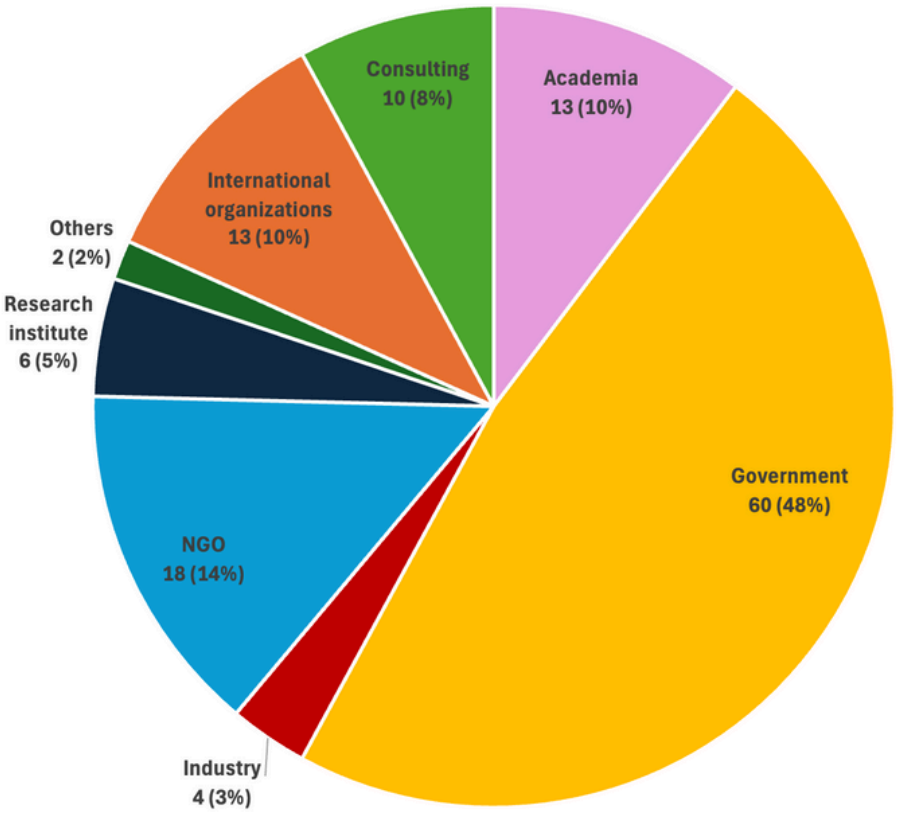
Registration and attendance

Number of registrants: 236 / total attendance: 126
(Approx. 55% female, 45% male)

Participants by country

Country	Attendees	Country	Attendees	Country	Attendees
Nigeria	10	Peru	2	Indonesia	1
Botswana	5	Portugal	2	Italy	1
Costa Rica	5	Thailand	2	Jamaica	1
Senegal	5	Togo	2	Republic of Korea	1
Trinidad and Tobago	5	United States of America	2	Kuwait	1
Cameroon	4	Uruguay	2	Madagascar	1
Eswatini	4	Zambia	2	Mexico	1
Suriname	4	Zimbabwe	2	Mongolia	1
Switzerland	4	Albania	1	Mozambique	1
Myanmar	3	Armenia	1	Nepal	1
South Africa	3	Belgium	1	Norway	1
Tunisia	3	Benin	1	Poland	1
Argentina	2	Brazil	1	Congo	1
Bangladesh	2	Czechia	1	Romania	1
Colombia	2	Egypt	1	Serbia	1
Dominican Republic	2	Ethiopia	1	Sierra Leone	1
Germany	2	France	1	Slovakia	1
Japan	2	Gambia	1	United Republic of Tanzania	1
Kenya	2	Ghana	1	Uganda	1
Lao People's Democratic Republic	2	Greece	1	United Kingdom of Great Britain and Northern Ireland	1
Liberia	2	Guyana	1		
Mauritius	2	India	1	Viet Nam	1

Participants by sector



Key highlights

This roundtable explored POPs data management systems in two complementary parts. The first introduced project guidance documents on national adoption strategies and regional data hubs, outlining stepwise approaches adaptable to country contexts. The second showcased practical examples from the Stockholm Convention Regional Centres, demonstrating how integrated data tools support POPs management and NIP updates.

Carla Valle-Klan, BRS Secretariat, opened the workshop by emphasizing that data management is central to the successful implementation of the Stockholm Convention, not a technical add-on for IT specialists. She stressed that quality data are essential for setting priorities, justifying policy choices, targeting limited resources and understanding whether countries are on the right track in managing POPs. Core Stockholm Convention obligations such as NIPs under Article 7 and national reporting under Article 15 largely depend on how Parties collect, organize and use data, alongside global processes including effectiveness evaluation and compliance committee. She highlighted that robust data systems – from web-based applications and data warehouses to analytical and mobile tools – can turn raw data into actionable information, support timely decision-making, enhance transparency and ensure continuity despite staff turnover. Data management, she noted, is not a one-off task, but requires sustainable governance, training and capacity-building, tailored to widely varying national contexts.

Mihaela Claudia Paun, UNEP Knowledge and Risk Unit, presented two guidance documents published by GGKP under the GEF 10785 project, emphasizing that they are contextual documents – not prescriptive blueprints – and should be applied selectively based on national and regional circumstances. She outlined the *Strategy for National Adoption on Medium- and Long-term Strengthening of POPs Data Management Systems*, which sets out a staged approach: assessing existing data management infrastructure; establishing data management expert groups or national committees (using existing structures if possible); engaging stakeholders; securing government support; and developing national POPs data management laws or regulations; monitoring and enforcement; and raising awareness.

Mihaela Paun highlighted data governance, quality, security and technology as focus areas for strengthening POPs data management systems. On the *Guidance on Key Features for Establishing a Data Management Hub at Stockholm Convention Regional Centres*, she noted that many countries lack national data management capacity and can benefit from regional data hub infrastructure, particularly through features such as multi-source data integration, cross-country collaboration, cloud-based scalability and user-friendly multilingual interfaces. She concluded by highlighting the Stockholm Convention Integrated Electronic Toolkit as a complementary mechanism for storing NIP and POPs inventory data, noting that national and regional approaches can operate synergistically rather than exclusively.

Key highlights

Kateřina Šebková, RECETOX, traced the Czech Republic's shift from paper-based records to digital systems for monitoring POPs. She noted that while the early 2000s were marked by fragmented PDFs and Excel sheets, today's challenge is "blindness by opportunity" – navigating thousands of databases to identify transparent, reliable data. In response, the Czech Republic – led by the RECETOX centre at Masaryk University – developed a harmonized database and visualization system with a standardized structure and metadata, laying the groundwork for what later became the Global Monitoring Plan Data Warehouse (GMP DWH), a global platform for POPs data storage and visualization.

The GMP DHW supports Article 16 of the Stockholm Convention by tracking changes in POPs concentrations over time. It comprises two interconnected components: a data management console for experts to verify and harmonize data submissions, and a public visualization interface for stakeholders. Covering core matrices – air, surface water, human breast milk and human blood – the system standardizes data to enable comparability, trend analysis and spatial mapping. Updated on a six-year cycle, with the next release scheduled for the 2027 Conference of the Parties, the GMP DWH serves as a central repository for regional groups, country partners, or research infrastructures.

Kateřina Šebková also described the development of the Czech national system, Global Environmental Assessment and Information System (GENASIS). Initiated in 2001, GENASIS supports decision-making with academic research by storing both official monitoring results and research data. This integration allows the Czech NIP teams to rely on research-based evidence. Additionally, she highlighted the Integrated Pollution Register (IRZ), established under the Kyiv Protocol on Pollutant Release and Transfer Registers (PRTR). Unlike GENASIS, which monitors environmental concentrations, the PRTR tracks emissions from specific facilities and installations such as industrial plants and waste management sites. Harmonized with EU legislation, this system requires operators to report annual releases of over 90 pollutants and 230 industrial activities. Visualization tools enable users to see where releases occur, which facilities are responsible, and how emissions are distributed across environmental compartments.

Kateřina Šebková offered critical lessons for countries developing their own POPs data systems: the need for interoperability and harmonization through internationally agreed-upon templates; trust and accountability underpinned by clear verification protocols; and the integration of science and policy as a foundation for effective environmental governance.

Dana Lewis, BCRC-Caribbean, presented on major regional advancements through the development of the Persistent Organic Pollutants Regional Information System (POPs-RIS). This initiative, carried out under the GEF 5558 project "Development and Implementation of a Sustainable Management Mechanism for Persistent Organic Pollutants (POPs) in the Caribbean", serves as a centralized database for national and regional information on the use, storage and management of POPs, and on contaminated sites across the Caribbean. Built on the ArcGIS Hub, at the core of the platform lies Geographic Information Systems (GIS) technology, a tool that allows mapping, analysis and visualization of data in spatial form to reveal trends and relationships between data points. This approach supports remote accessibility across participating countries, allowing multiple users to view, edit and update data in real time.

Key highlights

The system manages national and site-specific data with multi-level permissions, ensuring the integrity of data management while maintaining transparency for national stakeholders. Currently, the platform focuses on key POPs data, including POPs pesticides, PFOS, PCBs, PBDEs and unintentional POPs (UPOPs), with eight countries participating in the initial phase. The system requires data submissions to include GPS coordinates or mapped boundaries, identifying the location of POPs or POP-containing products, and allows users to add shapefiles for sensitive areas such as water bodies, residential zones, agricultural lands and protected ecosystems. With data on the location of POPs and nearby sensitive areas, the system enables decisions, inferring how chemicals may impact areas in proximity, allowing the RIS to ascribe risk ratings or scores to prioritize immediate management.

The platform acts as a repository for POPs-related studies and reports, including national inventories, assessment reports and recommendation reports. Users can upload field photos, link documents to specific sites and make updates to NIPs. By collecting data in a standard format across countries, reporting becomes easier, streamlining the process of tracking inventories, stockpiles, and emissions. This harmonized approach supports consistent, evidence-based NIP updates. BCRC-Caribbean plans to expand the platform to include other Caribbean countries and broaden its scope beyond POPs to include other chemicals and pollutants, evolving into a comprehensive regional hub for chemicals management.

Questions and answers

Q1: Given the scarcity of financial and human resources at the national level, it can be difficult for countries to implement all data management steps simultaneously. What would be your practical and realistic recommendation that countries could start with when collecting and managing POPs data?

Mihaela Paun: There is no universal solution, as this very much depends on each country's context. Before starting data collection, it is crucial to be clear about what data needs to be collected and what the main focus is. The chosen collection methods are equally important, as they influence how data will later be stored and aggregated. For example, while some countries may use Excel files, others may have online systems, and these formats need to be compatible. It is also necessary to identify relevant stakeholders early on and build their literacy on how to submit and collect data in a way that matches the chosen formats.
Before launching the process, countries should coordinate internally with teams working under related conventions, such as the United Nations Framework Convention on Climate Change or the Minamata Convention, since the same stakeholders might already be approached for similar information. This helps avoid duplication and ensures harmonized data formats, making aggregation and presentation much easier.

Q2: Is UNEP analyzing trends of POPs by region, and are there data that relate concentrations to health or environmental impacts?

Mihaela Paun: This work has been primarily addressed through the GMP-related projects and currently continues to be supported via the Global Chemicals Management Programme implemented by UNEP, all financed by the GEF. UNEP has supported the POPs monitoring-related activities, while the Secretariat of the Basel, Rotterdam and Stockholm Conventions and RECETOX have played a key role in maintaining the data warehouse.

Kateřina Šebková: UNEP has implemented GMP-related projects and currently operates the Global Chemicals Management Programme with GEF support to generate POPs data that would otherwise not exist. These data are important for the full implementation of Article 16 of the Convention globally. UNEP itself does not analyze POPs trends, but an expert group consisting of 30 experts nominated by the Parties under the Stockholm Convention regularly performs these analyses. In line with the GMP implementation plan, these analyses are published as regional (continental) and global reports, which also partly address health and environmental impacts. The next reports will be submitted to COP13 in 2027, with the subsequent global analysis provided for COP14 in 2029. Data used in these reports is available online via the GMP Data Warehouse. Additionally, numerous research teams investigate the fate and transport of POPs in the environment and humans and publish the results, frequently considering health and environmental impacts in scientific literature.

Questions and answers

Q3: From an enforcement and regulatory perspective, the challenge is often translating data into actionable intelligence. Could you elaborate on the data fields and reporting mechanisms designed to identify compliance gaps or non-compliant facilities?

Mihaela Paun: The way data is used depends on the initial request and the policy context in which it is collected. Under the Stockholm Convention, national legislation often establishes mandatory reporting requirements to enable data-based decision-making. Policymakers can then use this information to identify trends and take further regulatory action when emissions or concentrations do not decrease as expected. Data may also be used to document environmental investments or to understand baseline conditions before interventions. Each country will have its own approach, but ultimately, all data collection efforts aim to support the protection of human health and the environment.

Q4: One of the main challenges is obtaining accurate data and ensuring transparency once data is collected from stakeholders. What should countries do in such situations?

Mihaela Paun: A little information is better than none. Accuracy is always a challenge, but it is important to ensure data quality to the extent possible. Often, authorities rely on declarations from stakeholders, which cannot always be independently verified. While it is not realistic to double-check every statement, expert judgment should be used when something appears inconsistent. Countries can describe such uncertainties in their NIP or inventory reports and revisit them in future updates. Data verification can be resource-intensive, both financially and technically, so it is a matter of national decision how far verification can go. Reporting stakeholders should also be accountable for their submissions, and in some cases, third-party certification, such as requiring evidence for lead-free paints, can help ensure compliance and accuracy.

Q5: Will the tool also cover uPOPs? Is there a plan to assist countries in generating the data?

Mihaela Paun: The Stockholm Convention Integrated Electronic Toolkit has templates for uPOPs data. However, the data generation implies collecting activity data from industry and making estimations of emissions using the latest version of the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional POPs under Article 5 of the Stockholm Convention.

Q6: Our country contacted a lot of enterprises requesting information on POPs, but received no responses. What would you recommend?

Mihaela Paun: It may require identifying what other actions can be taken to help in getting feedback. Consider awareness-raising campaigns, training sessions organized through industry associations that can cascade information to different industry stakeholders, or simplifying data collection questionnaires to make participation easier.

Questions and answers

Q7: A key challenge is not just building a new system but ensuring it works with the existing digital infrastructure. Based on your experience, what was your most significant challenge in achieving interoperability between the new POPs information system and other preexisting national databases (e.g., customs, industrial facility registries), and what was the key to overcoming it?

Mihaela Paun: If there is a system in place, then there is less flexibility. What I would advise is to have an in-depth analysis of what exists and try to utilize it for POPs data needs and maybe propose limited changes to address your needs as well. It may not be fully comprehensive at the beginning, but it may evolve with time.

Q8: What is the procedure or first step for a country to take to establish its monitoring plan?

Kateřina Šebková: I'd suggest starting by reviewing whether there is any existing legislation that requires monitoring of chemicals in the environment – such as pesticides or released gases and aerosols – and identifying which institution manages sample collection. Usually, it is under the Ministry of Environment, the environmental agency, or the hydrometeorological institute. There could also be a possibility to join a global, continental, or other monitoring schemes (for POPs monitoring, GMP Regional Organization Group members usually know what activities are ongoing in their region, so I would suggest contacting them to tell you which network operates in your region/continent, and then you may wish to consider the possibility of how to join nationally).

Q9: With access to the GMP appearing limited, how can we capitalize on its data?

Kateřina Šebková: Access to the GMP Data is not limited because any data reported to regional organization groups and used in regional reports are publicly accessible 24/7 once approved by GMP experts. Countries can identify any additional data relevant to their region and contact regional group members or the GMP Data Warehouse team for assistance. The Czech Republic's national system, GENASIS, can also help countries with their own monitoring data. If countries contact us, we can allow them to use the system as Canada and Slovakia currently do (and they have a password-protected access to their raw data). Countries participating in the Global Monitoring Plan can use the GMP Data Warehouse platform to generate maps or trends for their NIPs and country reports. Alternatively, they can use data from neighboring countries as a first baseline or proxy, especially for air monitoring, for similar types of sites.

Questions and answers

Q10: Could you share examples of how data have been used to address pollution issues in the Czech Republic?

Kateřina Šebková: One case involved detecting high POP levels of PCBs near a paint producing facility (PCB, HCHs and PeCB), which led to remediation activities. Another example occurred at a historic theatre in Český Krumlov, where pentachlorophenol had been used to protect centuries-old wooden beams. The concentrations were significant, posing risks to visitors. Once detected, remediation was carried out in close coordination with archaeological and historical heritage authorities to remove the contaminated material while preserving the site. The levels have since been reduced to safe values, and the beautiful historical theatre is once again in use. In a few other cases, we discovered contamination in remote areas, prompting further steps or remediation plans. Water monitoring can be more complex due to flow dynamics, but even there, findings can indicate upstream pollution and make us take action. Monitoring activities are complex and costly, but can trigger immediate action or set up long-term plans.

Resources

- **The concept note and video recording in English, Spanish, French and Russian are available on the Global NIP Update platform:** https://www.greenpolicyplatform.org/webinar/embedding-pops-data-management-information-systems-national-and-regional-levels

Spanish | French | Russian

- **Key Features for Establishing a Data Management Hub at the Stockholm Convention Regional Centres:** https://www.greenpolicyplatform.org/research/key-features-establishing-data-management-hub-stockholm-convention-regional-centres

- **Strategy for National Adoption on Medium- and Long-term Strengthening of the Data Management Systems on Persistent Organic Pollutants:** https://www.greenpolicyplatform.org/guidance/strategy-national-adoption-medium-and-long-term-strengthening-data-management-systems

- **POPs data management systems**
  - GMP Data Warehouse: https://www.pops-gmp.org
  - GENASIS: https://www.genasis.cz/
  - PRTR - CZ : https://www.irz.cz/vyhledavani-v-irz

- **Stockholm Convention Integrated Electronic Toolkit**
  - https://nips.pops.int

Resources

- **Regional centre websites**
  - RECETOX: https://www.recetox.muni.cz/
  - BCRC Caribbean: www.bcrc-caribbean.org

- **Useful links**
  - Building ArcGIS based Information Systems for Chemicals Management: The Caribbean's POPs RIS
  - Two Decades of POPs Information Systems in the Czech Republic
  - Ask the Expert: Strengthening POPs Data Systems for Effective National and Regional Monitoring and NIP Update

If you have any questions or comments, please contact the GGKP team.

Fabienne Pierre, fabienne.pierre@un.org
Soomin Bae, soomin.bae@ggkp.org