

**Montreal Protocol  
on Substances that  
Deplete the Ozone Layer**

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**Workshop on strengthening the effective  
implementation and enforcement of the  
Montreal Protocol**  
Bangkok, 2 July 2023

**Open-ended Working Group of the Parties  
to the Montreal Protocol on Substances  
that Deplete the Ozone Layer**  
**Forty-fifth meeting**  
Bangkok, 3–7 July 2023  
Item 5 (a) of the provisional agenda\*

**Strengthening Montreal Protocol institutions, including  
for combating illegal trade (decision XXXIV/8):  
outcomes of the workshop on strengthening the  
effective implementation and enforcement of the  
Montreal Protocol (UNEP/OzL.Pro.WG.1/45/6)**

**Summary of the workshop on strengthening the effective  
implementation and enforcement of the Montreal Protocol**

**Note by the Secretariat**

**I. Background**

1. A one-day workshop on strengthening the effective implementation and enforcement of the Montreal Protocol on Substances that Deplete the Ozone Layer was convened in accordance with paragraph 4 (c) of decision XXXIV/8 taken by the parties to the Montreal Protocol at their Thirty-Fourth Meeting. The workshop was held on Sunday, 2 July 2023 at the United Nations Conference Centre in Bangkok immediately prior to the forty-fifth meeting of the Open-ended Working Group, taking place at the same venue from 3 to 7 July 2023.
2. The four substantive sessions of the workshop addressed:
  - (a) Combating illegal trade;
  - (b) Licensing and quota systems;
  - (c) Implementation and enforcement of the Montreal Protocol (including in relation to illegal consumption and production);
  - (d) Other considerations (e.g., “exemptions” and the value and limitations of tools for detecting and monitoring unexpected emissions of controlled substances).
3. The following background documentation was made available by the Ozone Secretariat in advance of the workshop:
  - (a) A concept note and provisional programme (UNEP/OzL.Pro/Workshop.11/1);
  - (b) A background information paper (UNEP/OzL.Pro/Workshop.11/2–UNEP/OzL.Pro.WG.1/45/5);

\* UNEP/OzL.Pro.WG.1/45/1/Rev.2.

(c) A note summarizing illegal trade practices reported in accordance with paragraph 3 of decision XXXIV/8 and approaches taken by national authorities to identify and address such cases (UNEP/OzL.Pro/Workshop.11/2/Add.1–UNEP/OzL.Pro.WG.1/45/5/Add.1);

(d) A note on the common features of licensing systems (UNEP/OzL.Pro/Workshop.11/2/Add.2–UNEP/OzL.Pro.WG.1/45/5/Add.2).

4. The workshop featured 34 speakers, including four session facilitators and four rapporteurs. The more than 300 participants included representatives of Governments; experts in the implementation and enforcement of the Montreal Protocol and related multilateral environmental agreements, such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants; and representatives of industry associations, international and non-governmental organizations, academic institutions and other entities. Sessions included presentations and panel discussions, with opportunities for all participants to contribute through questions and comments addressed to the speakers.

## II. Key points raised at the workshop

### A. Combating illegal trade

5. Session I was devoted to a discussion of the key types of activities that constitute illegal trade in different countries, and of the means employed by national authorities to detect and prevent those activities. It began with a presentation by the Secretariat of the summary of illegal trade practices reported in accordance with paragraph 3 of decision XXXIV/8 and approaches taken by national authorities to identify and address such cases. The ensuing panel discussion focused on the experiences of parties in the handling and reporting of cases of illegal trade, and on platforms and tools for exchanging information on imports and exports of controlled substances that could assist in the detection and prevention of illegal trade.

6. The key points from session I were the following:

(a) ***Illegal trade in controlled substances at the global level:*** The scale and scope of the global illegal trade in controlled substances are not precisely known but are widely believed to extend far beyond the cases reported by the parties to the Montreal Protocol on a voluntary basis. Customs inspections are the primary means of detecting such illegal trade. Other actions, such as intelligence gathering and post-clearance audits, are also commonly used. This indicates that addressing the issue of illegal trade in controlled substances requires a multifaceted approach, as well as effective monitoring frameworks. In particular, government agencies, especially customs, need to have the necessary knowledge and capacity to tackle this challenge effectively.

(b) ***Available tools and support:*** Various tools and support mechanisms already exist for sharing information about, managing the risks arising from, and preventing illegal trade in controlled substances. These include the database of reported cases of illegal trade available on the Ozone Secretariat's website and the informal prior informed consent (iPIC) mechanism (accessible online and by email), as well as the World Customs Organization (WCO) Advance Cargo Information System. Streamlining the use of iPIC, increasing and standardizing the information submitted by parties on illegal trade, and leveraging available guidance, standards and experience can further enhance the effectiveness of these reporting and information exchange mechanisms. Support for national competent authorities is also available from the WCO Compliance and Enforcement Sub-Directorate, OzonAction and the United Nations Environment Programme (UNEP) Law Division to enhance the capabilities of government agencies working to combat illegal trade. Aligning the use of these tools with regulatory frameworks can significantly improve the power of competent authorities: for example, they can reject exports on the basis of information obtained through iPIC.

(c) ***New opportunities for enforcement for hydrofluorocarbon phase-down:*** The phase-down of hydrofluorocarbons (HFCs) presents an opportunity to introduce new mechanisms for addressing non-compliance more swiftly, to be used alongside traditional enforcement measures. For instance, administrative measures can be used in cases of non-compliance with established rules and policies: quota allowances can be reduced or revoked when the required licence is lacking or the allocated quota has been exceeded. Third-party auditing of companies' record-keeping and reporting can also help ensure compliance. These new mechanisms aim not only to combat illegal trade but also to prevent it by informing stakeholders and deterring, detecting and disrupting illegal trade.

(d) **Comprehensive approach and collaboration:** Effectively preventing and combating illegal trade in controlled substances requires a comprehensive strategy. A “whole-of-government approach” that involves proactively mobilizing different agencies and industry stakeholders towards a common goal is essential. Information and data sharing are important for fostering cooperation, exchanging valuable information, and maintaining transparency.

(e) **Risk management:** Certain elements, such as foreign-flagged vessels and free trade zones, pose particular risks when it comes to illegal trade. However, these risks are manageable and fall within the purview of Governments. Fiji, for example, has implemented regulations that require the declaration of hydrochlorofluorocarbon (HCFC) consumption by foreign-flagged vessels. This regulatory framework also covers customs inspections of foreign-flagged vessels and of servicing companies that supply refrigerants to foreign-flagged vessels. These measures demonstrate the efforts taken to manage the risks associated with illegal trade in controlled substances. While free trade zones can enable illicit trade, customs authorities have a monitoring and enforcement mandate over such zones based on the International Convention on the Simplification and Harmonization of Customs Procedures (as amended). The WCO Practical Guidance on Free Zones<sup>1</sup> can be a valuable resource for managing risks of illegal trade in free trade zones.

## B. Licensing and quota systems

7. Session II provided an opportunity for parties to learn from each other’s domestic licensing and quota systems. It began with a presentation by the Secretariat on the common features of licensing systems, highlighting key aspects of an enforceable licensing system that would enhance its role in strengthening domestic implementation of the Montreal Protocol. The panel discussion provided examples of the domestic licensing and quota systems of selected parties, with a focus on good practices and lessons learned.

8. The following key points were discussed in session II:

(a) **Licensing and quota systems** are key instruments for controlling imports and exports of substances controlled under the Montreal Protocol. Such systems also facilitate data collection and verification to meet reporting requirements, and to allow for cross-checking of information between importing and exporting countries.<sup>2</sup>

(b) **Interagency collaboration:** National experiences emphasize the importance of inter-agency coordination, including data sharing and cross-checking of information, as well as the benefits of single-window systems connecting relevant actors, including customs offices and licence-issuing authorities. Some licensing and quota systems have been well integrated into national customs systems. Market surveillance plays a critical role in detecting misdeclaration and misused licenses. Collaboration among environmental agencies, customs offices and other relevant authorities is key for the effective implementation of a licensing system.

(c) **Challenges for implementing the Kigali Amendment:** Valuable lessons from the previous CFC and HCFC phase-out processes can be applied to HFC licensing and quota systems. However, the Kigali Amendment poses some unique challenges, including requirements to use carbon dioxide equivalent as a unit of measurement for reporting purposes. The use of carbon dioxide equivalent can be difficult for industry players, but requirements to use carbon dioxide equivalent for reporting should facilitate conversion. Carbon-dioxide-equivalent-based controls provide an opportunity to reduce consumption of high-global-warming-potential HFCs and incentivize imports of low-global-warming-potential refrigerants.

(d) **Requirements in licensing systems:** A minimum set of requirements for import and export licensing systems based on lessons learned identified by the Secretariat can be considered. A licensing system should support enforcement efforts. For example, proof that refrigerants are recycled or reclaimed is crucial to prevent illegal trade of new refrigerants disguised as recycled or reclaimed refrigerants, and it promotes a circular economy approach. Although not required under the Montreal Protocol, monitoring and licensing of imports and exports of products and equipment containing controlled substances have been identified as good practices, including in decision XIX/12 of the Meeting of the Parties. The issuance of licences on a per-shipment basis can also facilitate monitoring

<sup>1</sup> <https://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/practical-guidance-on-free-zones.aspx>.

<sup>2</sup> Decision XXXIV/8 requested the Secretariat to identify common features of licensing systems, which are reflected in document UNEP/OzL.Pro/Workshop.11/2/Add.2–UNEP/OzL.Pro.WG.1/45/5/Add.2.

of transit movements. The use of an iPIC mechanism combined with a licensing system has proved effective in preventing and detecting cases of illegal trade.

(e) Observations were also shared about the need to involve technicians as vulnerable stakeholders, and about the lack of affordable access to safe cooling.

### C. Implementation and enforcement of the Montreal Protocol (including in relation to illegal consumption and production)

9. In session III, participants explored opportunities to strengthen implementation and enforcement of the Protocol. While recognizing the Protocol's achievements, participants also acknowledged the need for improvements, including the development of new tools to deal with new issues. The discussion focused on the assessment of the strengths, weaknesses and gaps of the existing framework under the Montreal Protocol for implementation and enforcement at the international and national levels. Participants identified a number of opportunities to fine-tune the system to enable it to be even more effective, particularly in preventing illegal trade.

10. Session III yielded the following key insights:

(a) **Preventing illegal trade:** Strengthening atmospheric monitoring is an effective way of assessing the implementation of the Montreal Protocol, as was demonstrated in the case of unexpected emissions of CFC-11. Atmospheric monitoring needs to be supported by effective monitoring, reporting, verification and enforcement on the ground, including through clarification of the terminology related to illegal activities. Integrating trade control into a single-window system allows multiple players to be linked for more efficient coordination. Continued cooperation and engagement with customs departments and other relevant authorities are critical for monitoring the import and use of controlled substances. More detailed Harmonized System codes are needed for controlled substances and their blends and equipment relying on them. New technologies such as blockchains can be deployed to enable real-time tracking of trade in refrigerants.

(b) **New measures:** The consideration of any new measures to improve the implementation and enforcement regime should balance the benefits of such measures against the additional implementation burdens that they may impose on parties. To cope with HFC phase-down challenges, parties may consider establishing licensing and quota systems for equipment containing HFCs, selective bans on high-global-warming-potential HFCs where alternatives are readily available, and bans on the use of non-refillable cylinders.

(c) **A culture of compliance:** Effective domestication of the Montreal Protocol can contribute to the creation of an enabling environment for compliance centred on preventive action rather than criminal penalties. Essential to creating such a culture is a good relationship with industry. The private sector needs to be informed in a timely manner about new regulations, changes in requirements, and enforcement measures, and provided with clear guidelines for their implementation. In turn, industry players can help identify illegal activities in their sector and assist in bringing unregulated importers and users into the regulated community. When violations happen, meaningful penalties to deter future violations should be imposed.

(d) **Synergies and linkages with related programmes and projects** such as the UNEP-UNODC<sup>3</sup> Unwaste project and Operation Demeter, in partnership with WCO, should be explored to strengthen implementation and enforcement of the Protocol. Opportunities to obtain legal advice on the domestication of the Kigali Amendment and the revision of existing regulations through the UNEP Law and Environment Assistance Platform (UNEP-LEAP) should also be leveraged.

(e) **Broadening the information base:** Mechanisms must be put in place for regulators to know what they do not know, including about market trends, prices of refrigerants (which can be a risk indicator of illegal trade), information on imports and exports, and atmospheric conditions and estimates of emissions from controlled substances.

### D. Other considerations

11. Session IV covered important considerations not falling under the topics of the previous sessions but nevertheless relevant to efforts to strengthen the implementation and enforcement of the Montreal Protocol. Following a presentation that set the stage by asking what measures would be needed when the phase-out of ozone-depleting chemicals was complete, and what lessons from that phase-out could be applied for the phase-down of HFCs, panellists highlighted the importance of

<sup>3</sup> United Nations Office on Drugs and Crime.

atmospheric monitoring and the environmentally sound management of banks of controlled substances. They considered whether there might be opportunities to strengthen how international treaty bodies worked together to facilitate the transboundary movement of end-of-life controlled substances, and what lessons could be gleaned from the prior informed consent procedures of the Basel and Rotterdam conventions. They also explored the relevance of emissions from fluorochemical production processes.

12. The key points arising from discussions during the session were the following:

(a) ***Closing the gap in atmospheric monitoring*** can enhance the ability of science to detect unexpected emissions using atmospheric measurements of that substance and well-defined expectations of emissions. The feasibility of establishing and operating additional atmospheric monitoring capability depends on the monitoring approach and on available funding.<sup>4</sup>

(b) ***Further research is needed to understand expected emissions from continued feedstock uses***: Notwithstanding the phase-out of ozone-depleting substances, production of some of those substances for feedstock uses has been increasing. Recent scientific reports have highlighted unexpected emissions of controlled substances from fluorocarbon production processes and generated by-products<sup>5</sup> and the relevance of by-products generated during fluorocarbon production processes. Additional scientific research, both through atmospheric monitoring and at the production facilities themselves, is needed to better understand those emissions.

(c) ***Effective management of banks of controlled substances*** used in the refrigeration, air-conditioning and heat pump equipment, foams, and fire suppression sectors<sup>6</sup> maximizes recovery, recycling, reclamation and reuse, with destruction occurring after other options have been exhausted, minimizing the global impact of potential end-of-life emissions. The funding window for parties operating under paragraph 1 of Article 5 of the Montreal Protocol (Article 5 parties) to develop inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances was welcomed, and attention was drawn to the possible use of market-based financial mechanisms, such as carbon markets, as well as expanding extended producer responsibility.

(d) ***Effective coordination across multilateral environmental agreements*** can help ensure that joint objectives are met. For example, ensuring that recovered halon-1301 is not considered hazardous waste can help ensure that key fire-protection needs are met while avoiding limitations that may apply under the Basel Convention. Similarly, the continued use of methyl bromide for quarantine and pre-shipment uses may be a relevant consideration in the possible listing of that substance under the Rotterdam Convention. Lessons learned from the implementation of the prior informed consent procedure under the Basel and Rotterdam conventions may help strengthen iPIC. Many parties expressed an interest in better understanding how and when used and unwanted equipment and controlled substances are considered hazardous waste or chemicals; whether support can be provided under the Basel and Rotterdam conventions to help Article 5 parties better manage such waste and chemicals; and how to avoid the dumping of such waste or chemicals in those parties.

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<sup>4</sup>Details of the approximate costs involved in establishing atmospheric monitoring capabilities can be found in para. 34 of document [UNEP/OzL.Pro.WG.1/45/2/Add.2](#) and in Weiss and others, “Huge gaps in detection networks plague emissions monitoring”, *Nature* 595 (7868): 491–493 (2021). doi: 10.1038/d41586-021-01967-z

<sup>5</sup>M. K. Vollmer and others, “Unexpected nascent atmospheric emissions of three ozone-depleting hydrochlorofluorocarbons”, *Proceedings of the National Academy of Sciences*, vol. 118, no. 5 (2021); L. M. Western and others, “Global increase of ozone-depleting chlorofluorocarbons from 2010 to 2020”, *Nature Geoscience* 16, 309–313 (2023).

<sup>6</sup>Halons and HFC-227ea are particularly important for this sector.