Exploring Refrigerant Recovery as the Foundation for Lifecycle Refrigerant Management

The Climate and Ozone Protection Alliance (COPA) convened experts and practitioners from across the refrigeration and air-conditioning sector to examine one of the most critical building blocks of lifecycle refrigerant management (LRM): refrigerant recovery.

The first webinar in COPA's new Building Blocks of Lifecycle Refrigerant Management (LRM) series explored why refrigerant recovery is the essential first step for effective lifecycle refrigerant management. Moderated by Jomari Guillermo (UNDP/COPA Secretariat), the session delved into the practical, operational and policy challenges that continue to limit refrigerant recovery, while highlighting opportunities to strengthen systems in Article 5 countries.

Why recovery matters

Opening the technical sessions, Dr. Sukumar Devotta explained that refrigerant recovery provides the foundation for recycling, reclamation and destruction. Without effective recovery, refrigerants cannot be safely collected, tested, transported or managed further along the lifecycle.

Drawing on decades of experience in the refrigeration and air-conditioning sector, he highlighted several practical barriers that continue to limit recovery in many developing countries, including:

- the widespread use of small, distributed refrigeration and air-conditioning equipment containing relatively small refrigerant charges;
- limited access to recovery equipment and portable servicing tools;
- insufficient technician training on new low-GWP and flammable refrigerants;
- the absence of financial incentives for technicians to recover refrigerants; and
- voluntary rather than mandatory certification and recovery requirements.

Dr. Devotta emphasized that scaling refrigerant recovery will require stronger regulations, better-equipped service technicians, accessible recovery infrastructure and incentives that make recovery economically viable.

Improving refrigerant identification and traceability

In the next session contribution, Martin Botha (A-Thermal) steered the attention to another step in the LRM process and discussed the importance of refrigerant identification, characterization and documentation before refrigerants are transported, reclaimed or destroyed.

Using practical examples from refrigerant collection projects in southern Africa, Mr Botha demonstrated why refrigerants should never be identified solely by cylinder labels, as cylinders may contain different refrigerants than indicated or may have been contaminated over time.

He outlined several good practices for refrigerant identification, including:

- verifying refrigerant identity through portable analyzers where possible;
- recording cylinder weight, pressure and condition before transport;
- avoiding the mixing of unknown refrigerants during bulk collection;
- maintaining a clear chain of custody from collection through final treatment; and
- using laboratory testing when making final reclamation or destruction decisions.

Before concluding his presentation, Mr Botha stressed that strong documentation and proper classification at the beginning of the process bring dual benefits: it both reduces safety risks and improves downstream refrigerant management.

Barriers to scale

In the last expert contribution, Denise San Valentin, Programme Management Officer with the Climate and Clean Air Coalition at UNEP (CCAC cooling hub) explained why refrigerant recovery continues to remain limited in Article 5 countries. It is important to consider the reality in developing countries when looking to overcome barriers to scale, such as weak incentives, lack of recovery equipment, and regulatory enforcement. However, it is not all gloom. Local circumstances in Article 5 countries also offer unique opportunities for LRM business models, especially when a linear perspective is replaced with circular economy thinking. There is money to make with recycled materials and EPR models!

Discussion highlights practical pathways forward

After these insightful presentations, participants got the chance to directly exchange with the experts. The moderated discussion, led by Bettina Schreck, Coordinator of COPA's Implementation Models Working Group, enabled participants to exchange country experiences and explore practical solutions for strengthening refrigerant recovery.

The discussion highlighted the need for mandatory technician certification, stronger incentives for refrigerant recovery, improved recovery and reclamation infrastructure, clearer regulations governing transport and destruction, and greater engagement from equipment manufacturers. Participants also discussed opportunities for regional cooperation and financing to help countries establish more effective lifecycle refrigerant management systems.

Closing the webinar, Malin Emmerich (GIZ) reflected on the importance of grounding lifecycle refrigerant management in practical implementation, noting that the experiences shared throughout the session can help inform future policies and country-level action. She also emphasized that the webinar marked the first in COPA's Building Blocks series, with future sessions set to explore additional components needed to establish effective lifecycle refrigerant management systems.

For more details, you can download the presentations (pdf) and access the meeting recording (video) here.

Visit the COPA IMWG website for information on how to join and receive invitations for the next session in in COPA's Knowledge exchange series: “Building Blocks of Lifecycle Refrigerant Management (LRM)”