

**Ministry of Environment, Forest and Climate Change
Ozone Cell**

Annual Conference-cum-Exhibition 2024 Organized by the Association of Ammonia Refrigeration

Date: 2 February 2024 Time: 10 AM

**Venue: Hotel Le Meridien
Chennai.**

Talking Points

Mr. Aditya Narayan Singh, Additional Director, Ozone Cell, MoEFCC

Dignitaries on the dais, participants, ladies and gentlemen,

I am delighted to participate and address in this Annual Conference-Cum-Exhibition “ARCON 2024” organized by the Association of Ammonia Refrigeration (AAR). This annual conference is very appropriate, especially considering the challenges associated with the availability of alternative technologies in the phase out of Hydrofluorocarbons (HFCs) as per the Kigali Amendment to the Montreal Protocol.

Ladies and Gentlemen, as most of you may be aware, India has been implementing the Montreal Protocol since 1992, which is an international environmental treaty for phasing out production and consumption of substances that deplete the stratospheric ozone layer, called the Ozone Depleting Substances (ODSs). To address the phase out of ODSs, a Country Program, was developed in 1993 in accordance with its National Industrial Development Strategy of 1991, in consultation with all the concerned industry stakeholders and the various line

Ministries and departments to the Government of India. The Ozone Cell, set up by the MoEFCC, functions as the National Ozone Unit (NOU) for timely and effective implementation of the Montreal Protocol and the activities relating to the phase out ODSs, as per the agreed Montreal Protocol timeline. A structured implementation framework, supported by regulatory and fiscal measures, leading towards India successfully meeting all the ozone depleting substances phase-out targets of the Montreal Protocol.

India has been able to successfully phase out the ODSs such as CFCs, CTC, Halons, Methyl Bromide, Methyl Chloroform in line with the Montreal Protocol schedule and met all the compliance obligations of the Montreal Protocol. Currently the phase out of Hydrochlorofluorocarbons, commonly known as HCFCs, is in progress, which is to be completed by 1.1.2030. As per the Ozone Depleting Substances (Regulation and Control) Rules, as amended in 2014 for addressing HCFC phase out, use of HCFCs in manufacturing of all new HCFC based equipment is to be phased out by 31.12.2024. The activities in the servicing sector will continue till 2030. The ODS Rules is the regulatory framework for implementing the Montreal Protocol in India. HCFCs limited to 2.5% of HCFC baseline, which is the average of the production and consumption of HCFCs for the years 2009 and 2010, can be used for servicing of HCFC based equipment till 1.1.2040.

As Party to the Montreal Protocol and having ratified the Kigali Amendment during September 2021, India is mandated to comply with the agreed HFC phase

down schedule. The HFC phase down schedule applicable for India is the cumulative reduction of production and consumption of HFCs from the baseline by 10% in 2032, 20% in 2037, 30% in 2042 and 85% in 2047 respectively. The baseline for India is the average of production and consumption for 2024,2025 and 2026 respectively and the freeze year is 2028.

There are challenges associated in the phase down of HFCs, as most of the low global warming potential alternatives to HFCs have issues relating to availability, economic viability and safety related issues. Considering these challenges, it is important to have an effective and structured implementation framework so that there is no undue burden on the economy and on the enterprises that are producing and using HFCs in various applications. Accordingly, while ratifying the Kigali Amendment to the Montreal Protocol during September 2021, it has been decided that a national strategy for HFC phase down is to be developed in consultation with various line ministries/departments and the industry stakeholders.

Ladies and Gentlemen, the India Cooling Action Plan (ICAP), developed and launched by the MoEFCC during March 2019, has been the first of the initiatives taken in the world towards providing sustainable cooling and thermal comfort for all the citizens of the country. The ICAP has been a multi-stakeholder, integrated and consultative process to synergize actions for addressing the cooling demand and

address the cooling requirements across sectors and ways and means to provide access to sustainable cooling. The ICAP provides a 20-year perspective (2019 – 2038) and recommendations to address the cooling requirements across sectors and ways and means to provide access to sustainable cooling, through a holistic and balanced approach by encompassing both passive and active cooling strategies as well as optimization of cooling loads. The implementation of recommendations of the ICAP is through a holistic approach through forging synergies with existing governmental schemes and programmes, on-going implementation of HCFC phase out and HFC phase down to be implemented under the Kigali Amendment to the Montreal Protocol.

During the Montreal Protocol implementation, India is one among the few countries globally and a pioneer in some cases, in the use of technologies, which are non-Ozone Depleting Substances and low Global Warming Potential. India has proactively taken up the challenge to phase out HCFC 141b, used as a blowing agent in the production of rigid polyurethane foam, by 1.1.2020, well ahead of the Montreal Protocol schedule. Similarly, as part of HPMP Stage-III implementation, use of HCFCs in the manufacturing of new equipment will be phased out by 31.12.2024, again well ahead of the Montreal Protocol schedule. Against the phase out target of 35% of production and consumption of HCFCs from the baseline as on 1.1.2020, India achieved 44%, due to the pro-active measures taken by the country in the Implementation of HCFC phase out Management Plan (HPMP) Stage-II.

The country is now preparing itself for the HFC phase down under the Kigali Amendment. Efforts will be towards adoption of climate friendly alternatives and equipment for carrying out the technology conversion by the industry as far as possible from indigenous sources, considering safety and sustainability. Towards this, the MoEFCC has taken the initiative to collaborate with 8 IITs for carrying out R&D activities on low GWP chemicals through engagement of research scholars. Noting that servicing of RAC equipment using good servicing practices is very important for increasing performance and efficiency of cooling equipment and the increase in demand for skilled service technicians with the increase in cooling equipment, the MoEFCC is working closely with the Ministry of Skill Development and Entrepreneurship (MSDE), including the Directorate General of Training (DGT) for developing a unified certification and training system for the RAC service technicians for promoting good servicing practices including handling of flammable and toxic refrigerants and cooling equipment. Steps are also being taken to strengthen the training infrastructure at the Industrial Training Institutes where RAC training is imparted under the HPMP Stage-III.

In addition to meeting the Montreal Protocol compliance obligations, the country, towards protection environment and the climate system, has also taken necessary steps for appropriate management and disposal of refrigerants at the end-of-life RAC equipment through necessary provisions in the E-waste Management Rules. The hall mark for the success of Montreal Protocol

implementation in the country is the very active participation of the stakeholders including the concerned line Ministries/departments and the industry.

Ladies and Gentlemen, the global RAC industry has been undergoing several changes. Natural refrigerants like Ammonia, carbon dioxide and Hydrocarbons are not affected by environmental restrictions. Ammonia is a cost-effective and efficient alternative. Due to its superior thermodynamic properties, ammonia as a refrigerant requires less energy than other refrigerants when used in large industrial systems and is being efficiently used as a refrigerant in food processing and preservation, as well as many other refrigeration and air-conditioning processes outside the city units where human population is less. Further, the equipment and systems are becoming more reliable in terms of leakages. Other applications for ammonia-based refrigeration systems include thermal storage systems, process cooling and air conditioning, district cooling systems, supermarkets, convenience stores, power generation facilities, etc. Ammonia, as an alternative refrigerant for new and existing refrigerating and air-conditioning systems, is being actively investigated.

Ladies and Gentlemen, the Association for Ammonia Research is actively engaged in promoting safe use of ammonia as refrigerant through education, training, information and standards. While continuing its good work, the AAR should focus on the following:

- a) Systems / processes to ensure effective implementation of safety and environmental requirements.
- b) Promote strategy for development of components suitable for high pressure valves, keeping in view the market demand as well as the adaptability of smaller manufacturers in the RAC industry.
- c) Introduce and promote Standards for effective use of ammonia as a refrigerant, by developing guidelines for system design, safety and servicing.
- d) Promote developments of cost-effective solutions with greater systems efficiency
- e) Promote greater cooperation with other associations like Refrigeration and Air conditioners Manufacturers Association (RAMA) Refrigerant Gas Manufacturers Association (REGMA) Refrigeration and Air-Conditioning Servicing Sector Society (RASSS), etc. Network with universities, end-users contractors and components suppliers to effectively promote the use of ammonia as a natural refrigerant.

The Ozone Cell, MoEF&CC assures all possible facilitation to AAR in its various endeavors. I look forward to a concrete proposal from the AAR on the role it can play in the implementation of the Kigali Amendment.

Finally, I wish for a successful deliberation for today's conference and look forward to the recommendations of the conference.

Thank you.