

**MINUTES OF THE 47<sup>TH</sup> MEETING OF THE EMPOWERED STEERING COMMITTEE (ESC) FOR IMPLEMENTATION OF THE MONTREAL PROTOCOL HELD ON 19 DECEMBER 2025 IN TEESTA CONFERENCE HALL, MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, INDIRA PARYAVARAN BHAWAN, JORBAGH ROAD, NEW DELHI 110003 THROUGH HYBRID MODE**

1. The 47<sup>th</sup> meeting of the Empowered Steering Committee (ESC) for implementation of the Montreal Protocol was held on 19<sup>th</sup> December, 2025 at 2.00 P.M. in Teesta Conference Hall, Ministry of Environment, Forest and Climate Change (MoEF&CC), Indira Paryavaran Bhavan, Jorbagh Road, New Delhi under the Chairpersonship of Shri Tanmay Kumar, Secretary (EF&CC) through hybrid mode. The list of participants is attached at ***Annexure-I***.

2. Member Secretary, Shri Rajat Agarwal, Joint Secretary (Ozone Cell), MoEF&CC with the permission of the Chairman, initiated the discussions. He said that first the agenda relating to the Empowered Steering Committee (ESC) will be discussed, which will be followed by the meeting of the Steering Committee of the India Cooling Action Plan (ICAP). Member Secretary then gave an overview of Montreal Protocol and its implementation framework. He said that the Montreal Protocol is a compliance-based treaty which defines targets for Parties in terms of phase out/phase down of controlled substances and is the most successful international environmental treaty. The ESC, comprising representatives from all the concerned line ministries/departments and experts and oversees the implementation of the Montreal Protocol in the country and sets out the policy framework. After stating the ministries/departments of whose representatives are present at the meeting, he requested Shri Aditya Narayan Singh, Scientist 'F', Ozone Cell, MoEF&CC to present the agenda of the 47<sup>th</sup> ESC. A copy of the presentation made is enclosed ***Annexure-II***.

3. The details of agenda items considered, and the decisions of the ESC are as follows:

**Agenda Item No. 1: Confirmation of Minutes of the 46<sup>th</sup> meeting of the ESC**

4. Minutes of the 46<sup>th</sup> meeting of the ESC held on 20<sup>th</sup> August 2024 were confirmed.

**Agenda Item No. 2: Action taken report on the decisions of the 46<sup>th</sup> meeting of the ESC**

5. The ESC was informed that out of the total 9 action points, action has been completed for 6 points, the details of which were presented. For the remaining 3 action points, the following was presented which was noted by the Committee:

- i. On the action point relating to end-to-end management of production data of controlled substances, it was informed that migration of registration and reporting module of Ozone Cell to the Pro-Active and Responsive facilitation by Interactive, Virtuous, and Environmental Single Window Hub (PARIVESH) portal of the MoEF&CC is being done under which module for registration and import/export of ODS and HFCs is live in Phase-1. Modalities for reporting are being worked out

with Producers of Ozone Depleting Substances (ODSs) and Hydrofluorocarbons (HFCs), for which integration will be done in Phase-2.

- ii. On the action point relating to the notification to restrict use of Methyl Bromide for Quarantine and Pre-shipment (QPS) uses, it was informed that draft notification has been prepared for discussion with Ministry of Agriculture and Farmer, Welfare. Thereafter decision will be taken appropriately.
- iii. On the action point relating to the review of activities being undertaken by the 8 IITs (Roorkee, Madras, Kharagpur, Varanasi, Hyderabad, Tirupati, Patna and Kanpur), with whom collaboration has been done through a Memorandum of Agreement (MoA) to promote research and development of low global warming potential chemicals, including blends thereof, to be used as alternatives to HFCs in line with industry requirements through engagement of research scholars, the details of progress of activities of each of the 8 IITs is presented in item No. 7(vi) of the agenda.

**Agenda item No. 3: Progress on Implementation of Hydrochlorofluorocarbons (HCFC) Phase out Management Plan (HPMP) stage-III, comprising the following:**

- i. **Investment component – implemented by UNDP**
- ii. **Enabling Activities– Implemented by UNEP**
- iii. **Servicing sector activities Implemented by GIZ Proklima**

6. After presenting the salient features of the HPMP Stage-III, including the targets and outcomes, the progress of each of the 3 components was presented as follows:

**i. Investment Component – Implemented by UNDP**

The Committee was informed that under the investment component, a total of 50 participating enterprises comprising 38 enterprises in the refrigeration manufacturing sector and 12 enterprises in the air-conditioning manufacturing sector have to phase out HCFC-22 and carry out technology conversion to non-HCFC and low Global Warming Potential (GWP) alternative approved by the Executive Committee (ExCom) of the Multilateral Fund (MLF). 38 out of the 50 enterprises have completed the technology conversion activities and activity and financial progress of the activity presented was noted by the Committee.

**ii. Enabling Activities– Implemented by UNEP**

The progress on enabling activities comprising enforcement capacity building and outreach and awareness activities including the details of studies completed and released were presented, which was noted by the Committee.

**iii. Service Sector activities – Implemented by GIZ Proklima**

The Committee was informed that as part of the service sector activities, GIZ Proklima must train and certify 25000 AC service technicians. Certification for the trained AC technicians should be in accordance with the framework approved by the National Council for Vocational Education and Training (NCVET) of the Ministry of Skill Development and Entrepreneurship (MSDE), Government of India, as per which the Electronics Sector Skill Council of India (ESSCI) will be the Awarding Body for assessment and certification of the AC service technicians trained by the GIZ Proklima. To initiate implementation, a Memorandum of Understanding (MoU) has been signed between the 3 associated agencies, namely GIZ Proklima as the implementing agency for servicing sector activities under the HPMP Stage-III, ESSCI, the awarding body and Ozone Cell, MoEF&CC

7. The Committee was also informed that since GIZ has commenced the training activities without the certification, confirmation was sought from GIZ on whether it is willing to work on the implementation of service sector activities of HPMP Stage-III, with the MoEFCC as per the agreed implementation framework comprising (i) Implementation Agreement signed between Ozone Cell and GIZ for implementing the service sector activities of HPMP Stage-III (ii) Tripartite MOU between GIZ, ESSCI, and Ozone Cell, MoEFCC and (iii) Decisions of the Project Implementation Committee, constituted to oversee, guide and steer the implementation of the Project. GIZ confirmed that it is willing to work within the agreed framework of MoEFCC. Accordingly, GIZ has been advised to complete the registration process in Skill India Digital (SID) portal to implement training and certification of 25000 AC technicians. The ESC was informed that this activity will be closely monitored to ensure timely implementation as per the agreed framework.

8. The second component of the service sector activities of HPMP Stage-III comprise (i) strengthening of training infrastructure at 120 Industrial Training Institutes (ITIs) (ii) tools for trained and certified AC service technicians and (iii) tools and equipment for certified Refrigeration and Air conditioning (RAC) service centres. The equipment support to the 120 ITIs comprise the following training equipment:

- a) Basic refrigeration and electrical cycle unit (Frost free refrigerator)
- b) Split AC training unit compatible with inverter technology
- c) Commercial refrigeration training unit
- d) Industrial Refrigeration unit for rack systems
- e) Split AC installation unit frame

9. The Committee was informed that equipment supply, installation and commissioning and handover has been completed for 70 ITIs and will be completed for the balance 50 ITIs by March 2026. Regarding tools and equipment support to trained and certified AC service technicians and certified RAC centres, it was informed that the activity will be implemented during 2026 once when the certification of trained AC technicians is commenced by GIZ.

#### **Agenda Item No. 4: Progress on implementation of R&D and HFC demonstration projects**

10. The Committee was apprised that pursuant to the ratification of the Kigali Amendment by India during September 2021, two projects for demonstrating low GWP technologies

from HFCs are being implemented to have on the ground experience in transitioning to low-GWP alternatives, primarily in refrigeration and air-conditioning manufacturing sectors, so that the learnings can be incorporated during HFC phase-down to be commenced from 2028 onwards. In addition, one R&D project titled “Design and development of a pilot scale energy-efficient rotary compressor along with microchannel heat exchanger compatible with R-290 technology at Godrej & Boyce Mfg. Ltd., for use in manufacturing of room air conditioners is being implemented to promote indigenous capability in the components of air conditioning manufacturing. The activity and financial progress was noted by the Committee.

#### **Agenda Item No. 5: HFC phasedown Strategy for implementation of the Kigali Amendment – Way forward**

11. The ESC was apprised of the actions taken pursuant to the ratification of the Kigali Amendment to the Montreal Protocol in September 2021 including establishment of licensing system for import and export of HFCs and blends containing HFCs and reporting of data on HFCs to the Montreal Protocol bodies. The activities undertaken as part of development of national strategy for HFC phase down and the way forward for the development of the HFC phase down strategy was noted by the Committee.

#### **Agenda Item No. 6: Key outcomes of Montreal Protocol Meetings**

12. The ESC noted the key outcomes of the Montreal Protocol meetings since the last meeting of the ESC, namely, the Executive Committee (ExCom) of the Multilateral Fund, the Meeting of the Parties (MOP) and the Open-Ended Working Group (OEWG) of the Parties to the Montreal Protocol

#### **Agenda Item No.7: Reporting items**

i. **Issuance of quota order for Hydrochlorofluorocarbons (HCFC)-22 Production for non-feedstock applications for 2025 in line with the Montreal Protocol phase out schedule and as per the provisions of Ozone Depleting Substances (Regulation and Control) Rules 2000, as amended in 2014.**

13. The ESC was informed that the Production Quota is issued to the producers of HCFC-22 in the country based upon the average of the non-feedstock HCFC-22 production reported under the Montreal Protocol, for the years 2009-2010 (which constitutes the baseline, from which phase out is to be done and reduction target is to be achieved by the producers of HCFC-22 in line with the phase out schedule of the Montreal Protocol). The HCFC-22 production for non-feedstock uses is apportioned on pro-rata basis among the HCFC-22 producers. Quota for HCFC-22 production was issued to the HCFC-22 producers for the year 2025 with the approval of Secretary, EF&CC and Chairman, ESC.

ii. **Organization of World Ozone Day during 2024 and 2025**

14. The ESC noted the organization of the World Ozone Day 2024 and 2025 at Delhi including the activities undertaken, publications including study reports, and documentary

videos released on the occasion. The announcements made on the occasion comprise unified certification system for AC service technicians on the World Ozone Day 2024 and equipment support to 120 ITIs on the World Ozone Day 2025.

iii. **Submission of production, export and import of Ozone Depleting Substances (ODSs) and Hydrofluorocarbons (HFCs) data under Article-7 of the Montreal Protocol to the Ozone Secretariat and production, consumption, export and import of ODSs and HFCs data under Country Programme Progress Report (CPPR) to the Multilateral Fund Secretariat for the year 2023 and 2024.**

15. The ESC was apprised that as per the Montreal Provisions two types of data are to be submitted each year, (i) Article-7 of the Montreal Protocol comprising statistical data on controlled substances to the Ozone Secretariat every year and (ii) each Article 5 (developing) country that has a Country Programme supported by the Multilateral Fund must provide information annually to the MLF Secretariat, on progress in the implementation, comprising chemical wise consumption in various sectors/sub-sectors, called the CPPR data.

16. The Standing Committee on Monitoring, a standing Committee of the ESC, chaired by the Ex-Officio, Chairman, Central Pollution Control Board (CPCB) reviews the data compiled by the Ozone Cell and recommends the same for submission of Article 7 data Ozone Secretariat and CPPR data to the MLF Secretariat respectively

17. The ESC noted the submission of Article 7 and CPPR data for the years 2023 and 2024 with the approval of Secretary EF&CC and Chairman, ESC. The ESC also noted the registration of 2 enterprises for feed stock uses under ODS Rules.

iv. **Registration of enterprises and issuance of recommendation for import/export of controlled substances**

18. The ESC noted that since the last meeting of the ESC, a total of 374 enterprises were registered comprising 347 enterprises as seller of HCFC-22 (for servicing of existing refrigeration and air-conditioning equipment), 1 producer of CTC for feedstock application, 23 users of HCFC-22, BFM, HCFC-142b for feedstock application, 1 importer of HCFC-142b for feedstock application and 2 exporters of HCFC-225 for feedstock application.

19. The ESC also noted that since the last meeting of the ESC, 194 recommendations were issued to the Directorate General of Foreign Trade (DGFT) for export and import of ODSs and HFCs.

v. **Memorandum of Agreement (MoA) with Central Institute of Petroleum Engineering and Technology (CIPET), Department of Chemicals and Petrochemicals for handholding foam manufacturing enterprises participating in HCFC Phase out Management Plan Stage-II (HPMP Stage-II) in transitioning to non HCFC and low GWP alternatives – No claim for Bank Guarantee**

20. The ESC was apprised that a MOA was signed with CIPET, Department of Chemicals & Petrochemicals, Government of India on 31<sup>st</sup> December 2018, to facilitate and handhold the foam manufacturing enterprises participating in HCFC Phase out Management Plan Stage-II (HPMP stage-II) in transitioning to non HCFC and low GWP alternatives. The objective of the MOA was to facilitate the large number of participating Micro, Small and Medium enterprises (MSMEs) in the foam manufacturing sector in HPMP Stage-II to ensure a smooth and sustainable phase out of HCFC-141b. CIPET's role was to act as a technical assistance facility for technology resources and training, testing and carrying out trials on foam formulations using non HCFC and low GWP alternatives considering issues like flammability, toxicity and insulation performance.

21. Noting that CIPET submitted the final progress report and the statement of expenditure and utilization of funds certified by the competent authority of CIPET and also noting that HPMP Stage-II project has been closed, and the final progress report was accepted by the ExCom of the MLF during its 96<sup>th</sup> meeting held in May 2025, the proposal for communication of no claim of bank guarantee for INR 1,04,00,670 provided for CIPET, which constitutes 30% of the approved amount of INR 3,46,68,900/-, was noted by the ESC.

vi. **Progress on activities carried out by the 8 Indian Institutes of Technology (IITs)**

22. The ESC was informed that a MOA has been signed with 8 IITs (Roorkee, Madras, Kharagpur, Varanasi, Hyderabad, Tirupati, Patna and Kanpur) to promote research and development of low global warming potential chemicals, including blends thereof, to be used as alternatives to HFCs in line with industry requirements through engagement of research scholars, with the objective to promote the "Make In India" initiative of the Government. The MOAs signed during 2022 are upto a period of 5 years till 2027. An advisory committee chaired by the Joint Secretary (Ozone Cell), MoEF&CC reviews the progress of the activities. The progress of activities carried out by each IIT presented was noted by the ESC.

23. The meeting ended with thanks to the Chair.

\*\*\*\*\*

**Annexure-I**

1.	Shri Tanmay Kumar Secretary Ministry of Environment, Forest and Climate Change Indira Paryavaran Bhawan Jor Bagh Road New Delhi-110003
2.	Shri Rajat Agarwal, Joint Secretary Ministry of Environment, Forest and Climate Change Indira Paryavaran Bhawan Jor Bagh Road New Delhi 110003
3.	Shri S. Sasi Kumar Director Ministry of Power Government of India Ph: 011- 23715507 Email: sasikumar.s@gov.in
4.	Shri Arijit Sengupta Director Bureau of Energy Efficiency Ministry of Power Government of India Ph: 011-26766718 Email: asengupta@beeindia.gov.in
5.	Ms. Deepika Srivastava Joint Director Department of Economic Affairs Ministry of Finance Government of India Mob: 9811216891 Email: deepika.s86@nic.in
6.	Shri Pradynt Kumar Pyne Deputy Director Department of Economic Affairs Ministry of Finance Government of India Ph: 24012955 Email: pradynt.pyne@nic.in
7.	Dr. Mehraj Aji Shaikh Deputy Commissioner (NRM/RFS) Ministry of Agriculture and Farmers Welfare Government of India Mob: 9970387204 Email: ac.nrm-agri@gov.in

8.	Shri Raj Narayan Pankaj Additional Director Central Pollution Control Board Ministry of Environment, Forest and Climate Change Government of India Email: rnpankaj.cpcb@nic.in
9.	Shri Naresh Central Pollution Control Board Ministry of Environment, Forest and Climate Change Government of India Mob: 7015735307
10.	Shri Pankaj Kumar Director Ministry of Food Processing Industry Government of India Mob: 9712154785 Email: pankaj.kumar1975@gov.in
11.	Shri Pradyot Koley Scientist 'D', CEST Division Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi - 110016 Ph: 29512324 Email: p.koley@gov.in Tel: 011-29512324
12.	Dr. Sanjay Chattopadhyay Convener Department Chemicals & Petrochemicals Ministry of Chemicals and Fertilizers Government of India Email: sanjay.c59@gov.in
13.	Ms. Sonia Behl Director Government e Marketplace (GeM) Ministry of Commerce and Industry, Government of India Mobile: 8427038282 Email: sonia.behl@gem.gov.in
14.	Ms. Arpana Singh Assistant Manager Government e Marketplace (GeM) Ministry of Commerce and Industry Government of India Mob: 7080457726
15.	Shri Adarsh Kumar Tiwari Government e Marketplace (GeM) Ministry of Commerce and Industry Government of India Mob: 8853512948



16.	Shri Kumar Animesh Head- Mechanical Engineering Department Bureau of Indian Standards Email: hmed@bis.gov.in
17.	Ms. Neha Thakur Deputy Director / Scientist C Mechanical Engineering Department Bureau of Indian Standards Mobile: 7898323992 Email: med@bis.gov.in
18.	Shri Deepangkar Guha Director Ministry of Labour & Employment Government of India Mobile: 9354246560 Ph: 23710704 Email: d.guha@nic.in
19.	Shri N. K. Nayak Chief Engineer Ministry of Road Transport and Highways Government of India Mobile: 9401552552 Email: niranjan.nayak@gov.in
20.	Dr. Ashish Kumar Sr. Consultant Department for Promotion of Industry and Internal Trade Ministry of Commerce and Industry Technical Officers (Engg. Wing) 133, Vanijya Bhawan, New Delhi - 110011 Mobile: 9899350620, Ph: 23038933 Email : krashish@nic.in
21.	Shri Parveen Tyagi Joint Director Ministry of Skill Development and Entrepreneurship Government of India Room No. 115, Kaushal Bhawan, New Moti Bagh New Delhi - 110023 Mobile: 8143956020 Email: parveen.kumar79@gov.in
22.	Shri Pranav Choudhary Joint Director Directorate General of Training (DGT) Ministry of Skill Development and Entrepreneurship CD Section, CIRTES Building, Pusa Office (Beside ITI Pusa), New Delhi 110012 Mobile: 9911138178 Email: pranav.c@nic.in

23.	Shri Santosh Kumar Assistant Director Ministry of Micro, Small & Medium Enterprises Government of India Mob: 9625584971 Email: santosh.kumar@dcmsme.gov.in				
24.	Shri Jatin Jain Assistant Director-Chemicals, Petrochemicals & Fertilizers Federation of Indian Chambers of Commerce and Industry (FICCI) Email: jatin.jain@ficci.com Mob: 9560071983				
25.	Dr. Nilesh Pawar Deputy Director Department of Fisheries Ministry of Fisheries, Animal Husbandry and Dairying Mob: 7977017734 Email: nilesh.pawar85@dof.gov.in				
26.	Dr. Rashid Hasan Senior Advisor Society of Indian Automobile Manufacturers (SIAM) Core 4-B, 5 <sup>th</sup> Floor, India Habitat Centre Lodhi Road, New Delhi – 110003 Mob: 9891370656 Email: hasan@siam.in				
27.	Shri Aditya Kumar SIAM				
28.	Shri. Sonal Kumar Programme Lead Council on Energy, Environment and Water (CEEW) ISID Campus, 4, Vasant Kunj Institutional Area New Delhi – 110070 Ph: 9971447171 Email: sonal.kumar@ceew.in				
29.	Shri. Sunil Gulpadia Secretary Refrigerant Gas Manufacturers' Association (REGMA) Block-C, Sector-45, Gurugram, Haryana - 122 003 Ph: 9810495577 Email: gulpadia@srf.com				
30.	Shri. Harsh Vardhan Pant Secretary Refrigeration and Air-Conditioning Manufacturers Association (RAMA) Unit No-1016, 10 <sup>th</sup> Floor, WTT, Sector-16, Noida – 201301 Mobile: 8826997711 Email: secretary@rama-india.org harshpant@yahoo.com				

31.	Shri Srinivasu Moturi RAMA/Voltas Limited Mob: 9899872440
32.	Shri Arun Kumar Ujjwal VP – Operations, Affiliations & QC Electronics Sector Skills Council of India (ESSCI) Mobile: 7060257776 Email: info@essc-india.org
33.	Shri Saleem Ahmed Officiating Head Electronics Sector Skills Council of India (ESSCI) 155, 2nd Floor, ESC House, Okhla Industrial Area-Phase III, New Delhi - 110020 Mobile: 8800691564 Email: ceo@essc-india.org, saleem@essc-india.org
34.	Shri Rajneesh Sareen Programme Director Centre for Science and Environment 41, Tughlakabad Institutional Area, New Delhi-110062 Ph: 9313088981 Email: rajneesh.sareen@cseindia.org
35.	Shri Shaurya Anand, Associate Fellow The Energy and Resources Institute (TERI) IHC, Lodhi Road, New Delhi - 110003 Mob: 9651548011 Email: shaurya.anand@teri.res.in
36.	Shri Ankesh Kumar Srivastava Under Secretary Ministry of Petroleum & Natural Gas Government of India Shastri Bhawan, New Delhi - 110001 Mob: 9951598810 Email: ankesh.ks@gov.in
37.	Shri Anil Kumar Choudhary Chief General Manager (CGM) Energy Efficiency Services Limited (EESL) Mobile: 9431706989 Email: head-agdsm@eesl.co.in
38.	Dr. Santosh Yadav Senior Counsellor Confederation of Indian Industry 3 <sup>rd</sup> Floor, Andhra Association Building

	24,25 Institutional Area, Lodhi Road, New Delhi -110 003 Mobile: 9075810205 Email: santosh.yadav@cii.in
39.	Shri Kapil Mehrotra Vice Chair – ISHRAE Advocacy Committee Indian Society of Heating Refrigerating and Air-Conditioning Engineers (ISHRAE) No. 1103 & 1104, 11 <sup>th</sup> Floor, Chiranjiv Tower, Nehru Place, New Delhi – 110019 Mobile: 9810202450 Email: advocacy@ishraehq.in;
40.	Shri Ashish Gupta Member, ISHRAE Advocacy Committee
41.	Shri Santosh Saini, Alliance for an Energy Efficient Economy (AEEE) 37 Link Road Ground Floor, Lajpat Nagar III, New Delhi 110024 Email: santosh@aeee.in
42.	Dr. Shankar Gopal Aggarwal Senior Principal Scientist CSIR-National Physical Laboratory (CSIR-NPL) Dr. K.S. Krishnan Marg, New Delhi – 110012 Mobile: 9868602917 Email: aggarwalsg@nplindia.org
43.	Shri Pramod P. Pungaonkar Refrigeration & Air-conditioning Servicing Sector Society (RASSS) Mobile: 9226727575 Email: pramodpungaonkar.rasss@gmail.com
44.	Shri Sharanjit Singh Bedil RASSS
45.	Shri Asheesh Fotedar Chief Operating Officer (COO, NCCD) National Centre for Cold-Chain Development (NCCD) Department of Agriculture, Cooperation & Farmers Welfare Ministry of Agriculture and Farmers Welfare, Govt. of India Email: asf.nccd@gmail.com, coo-nccd@gov.in
46.	Shri Pritam Sarkar Engineer (Cold Chain) National Centre for Cold-Chain Development (NCCD) Department of Agriculture, Cooperation & Farmers Welfare Ministry of Agriculture and Farmers Welfare, Ph: 124-2979650 Email: <a href="mailto:pritam.nccd@gmail.com">pritam.nccd@gmail.com</a>
47.	Dr. D. Srinivasa Reddy Director, CSIR-Indian Institute of Chemical Technology Email: director.iict@csir.res.in (Virtually)

48.	Dr. G. Venkatarathnam Professor, Department of Mechanical Engineering IIT Madras Email: gvenkat@iitm.ac.in <b>(Virtually)</b>
49.	Dr. Krishnaiah Atmakur Chief Scientist & Head CSIR-IICT Email: krishnu@iict.res.in <b>(Virtually)</b>
50.	Dr. J. P. Gupta, Chair, Environment & Climate Change Committee PHD Chamber of Commerce and Industry (PHDCCI) <b>(Virtually)</b>
51.	Dr. J. S. Sharma Co-Chair, Environment & Climate Change Committee PHD Chamber of Commerce and Industry (PHDCCI) <b>(Virtually)</b>
52.	Shri Manish, National Council for Vocational Education and Training <b>(Virtually)</b>
53.	Shri Aditya Narayan Singh Scientist 'F'/ Director (Ozone Cell) Ministry of Environment, Forest and Climate Change 1st Floor, 9, Institutional Area, Lodhi Road, New Delhi – 110 003 Ph: 24642176 ; Fax: 24642175 Email: aditya.narayan@nic.in
54.	Dr. Mahendra Phulwaria Scientist 'D'/Joint Director (Ozone Cell) Ministry of Environment, Forest and Climate Change New Delhi - 110003 Ph. : +91 11 2464 2176 Fax : +91 11 2464 2175 Email: m.phulwaria@gov.in
55.	Ozone Cell
	Shri S.V. Subba Rao National Programme Manager, Ozone Cell Ministry of Environment, Forest and Climate Change
	Ms Yangdup Lama Sr. Technical Officer, Ozone Cell Ministry of Environment, Forest and Climate Change
	Ms Chanchal Sharma Technical Officer, Ozone Cell Ministry of Environment, Forest and Climate Change



**Annexure-II**

# **47<sup>TH</sup> MEETING OF THE EMPOWERED STEERING COMMITTEE FOR IMPLEMENTATION OF THE MONTREAL PROTOCOL**

**19<sup>th</sup> December 2025**

**OZONE CELL**

**MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE  
GOVERNMENT OF INDIA**



## AGENDA ITEM 1

**Confirmation of Minutes of the 46th meeting of the Empowered Steering Committee (ESC) held on 20<sup>th</sup> August, 2024**

No comments received. Minutes to be confirmed.



## AGENDA ITEM 2

### Action Taken Report on Minutes of Last ESC

**ATR presented in Agenda papers in pages 5 to 7**

Total action points	9
Action Implemented	6
Partially implemented	3





## AGENDA ITEM 2- Action Taken Report on Minutes of Last ESC- Contd.... Actions Implemented

Action point	Implemented
Display of sale of HCFC-141b, phased out as on 1.1.2020 on India Mart, an e-commerce portal.	Based on directions issued by DPIIT to India Mart, display/sale of HCFC-141b has been removed from India Mart
Producers of Ozone Depleting Substances (ODSs) to submit quarterly/annual reports certified by Statutory Auditors	Action is being complied by the ODS Producers
Traders/sellers of HCFC-22 to be registered with the Ozone Cell as per the provisions of ODS, Rules for servicing purpose	336 Traders/sellers have been registered till November, 2025 only for servicing purpose.
Refrigerant Gas Manufacturers Association (REGMA) to submit report on disposal of seized cylinders from customs and to develop SOP	<ul style="list-style-type: none"> <li>Report is being submitted by REGMA on procurement of seized cylinders, which is adjusted in the annual quota of HCFC-22.</li> <li>SOP submitted by REGMA is in line with the customs manual.</li> </ul>
DPIIT to constitute a committee to examine the issue of Spurious gases and mixing of HFC-152a refrigerant in air conditioners	Committee constituted by DPIIT recommended that Ozone Cell will issue no-objection for import of HFC-152a only to the actual end user after getting registered with Ozone Cell.
AC manufacturers should adopt and implement the unified certification system of NCVET for AC service technicians.	Communication sent by Ozone Cell to industry associations. DPIIT also sent a communication to Refrigeration and Air conditioning Manufacturers Association (RAMA) on this issue for necessary action.



## AGENDA ITEM 2- Action Taken Report on Minutes of Last ESC- Contd....

### Partially Implemented Actions/Ongoing

Action point	Progress and further proposed action
End-to-end management of production data of controlled substances- Existing MIS of Ozone cell to be strengthened	<p>Migration of registration and reporting module to PARIVESH portal</p> <ul style="list-style-type: none"> <li>Module for registration and import/export of ODS and HFCs is live in Phase-1.</li> <li>Modalities for reporting are being worked out with Producers of ODS and HFCs. Integration will be done in Phase-2</li> </ul>
Notification to restrict use of Methyl Bromide for Quarantine and Pre-shipment (QPS) uses	<ul style="list-style-type: none"> <li>Draft notification prepared for discussion with Ministry of Agriculture and Farmer, Welfare in January, 2026. Thereafter the same shall be finalized and notified.</li> </ul>
Review of activities being undertaken by 8 IIITs	<ul style="list-style-type: none"> <li>Progress of activities presented under Agenda item 7 (vi)</li> </ul>



## AGENDA ITEM 3(i)

### Background of HPMP Stage-III

#### Salient points

- HPMP Stage-III approved at 91st Ex-Com of MLF (Dec 2022)
- To be implemented from 2023-2030 (Phase-out of HCFCs in new manufacturing completed by 1.1.2025)
- Total funding: US\$ 25.16 million (technology conversion to non-ODS alternatives, enabling activities and service sector activities)

#### Key Outcomes

- Complete phase-out of HCFCs in new manufacturing of equipments in line with accelerated Montreal Protocol schedule
- Reduction: 10,678.87 MT (579.99 ODP tonnes) of HCFCs
- Climate co-benefits: ~19.24 million tonnes CO<sub>2</sub>-eq. emission reduction from 2030 onwards
- Supports India's 2025 & 2030 HCFC Montreal Protocol compliance targets



## AGENDA ITEM 3(i)

### Implementation of HPMP Stage-III

#### Investment Component – Technology Conversion under HPMP Stage-III (Implemented by UNDP)

Sector	No of participating Enterprises	Progress on Implementation			
		Enterprises Completed	Financial (in US\$)		
			Amount Allocated	Amount Disbursed	Balance to be disbursed
Refrigeration Manufacturing	38	28 (73.6%)	2,226,467	1,563,656 (70%)	662,811 (30%)
Air conditioning Manufacturing	12	10 (83%)	1,862,913	1,089,005 (58%)	773,908 (42%)
<b>Total</b>	<b>50</b>	<b>38 (76%)</b>	<b>4,089,380</b>	<b>2,652,661 (65%)</b>	<b>1,436,719 (35%)</b>

#### Proposal for consideration of ESC:

To note the following:

- Progress of implementation of HPMP stage-III relating to technology conversion activities by the 50 participating enterprises
- CSIR-CMERI onboarded as National Technical Institution for supporting HCFC phase-out for sustaining up to 2030 and MoA signed.
- Second tranche funding of US\$ 8.65 million for HPMP Stage-III approved by the ExCom of the MLF during December, 2024.



## AGENDA ITEM 3(ii) Enabling Component – UNEP Implementing agency

<b>Overview</b>	❖ Implemented through Project Cooperation Agreement (PCA) between UNEP and Ozone Cell. PCA for Tranche-II signed in November 2025
<b>Focus Areas</b>	<ul style="list-style-type: none"> <li>❖ Enforcement capacity building</li> <li>❖ Outreach and awareness activities</li> </ul>
<b>Key Progress</b>	<ul style="list-style-type: none"> <li>❖ <b>Capacity Building for Pollution Control Boards:</b> (i) Training manual developed; (ii) first training held at CPCB (8 Dec 2025), (iii) 12 additional sessions to be conducted during Jan–April 2026.</li> <li>❖ <b>Customs Capacity Building:</b> (i) Risk-profiling module developed; (ii) 7 training programmes conducted by NACIN, covering ~200 customs officials</li> </ul>
<b>4 Studies Completed &amp; Launched (World Ozone Day 2025)</b>	<ul style="list-style-type: none"> <li>❖ Techno-economic feasibility of District Cooling Systems</li> <li>❖ Low-GWP chiller technologies for large buildings</li> <li>❖ Best practices for ammonia/low-GWP technologies in cold chain</li> <li>❖ Low-GWP technologies in transport refrigeration</li> </ul>
<b>Studies in Progress (by March 2026)</b>	<ul style="list-style-type: none"> <li>❖ Women's participation in the RAC sector by TERI</li> <li>❖ Climate-responsive evaluation of local cooling/heating practices in rural areas by TERI</li> </ul>
<b>Proposal for consideration of ESC:</b> To note: <ul style="list-style-type: none"> <li>(i) Progress on implementation of enabling activities</li> <li>(ii) PCA signed for tranche II</li> </ul>	



## AGENDA ITEM 3(iii)

### Servicing Sector Activities - GIZ Proklima implementing agency

<b>Key Components</b>	<ul style="list-style-type: none"> <li>❖ Training &amp; certification of 25,000 AC service technicians</li> <li>❖ Equipment support to 120 ITIs, certified technicians and service centres</li> </ul>
<b>Training &amp; Certification (Implemented by GIZ)</b>	<ul style="list-style-type: none"> <li>❖ Certification for AC service technicians approved by NCVET-MSDE through ESCCI as Awarding Body for assessment &amp; certification</li> <li>❖ Implementation framework: <ul style="list-style-type: none"> <li>• Agreement between Ozone Cell &amp; GIZ</li> <li>• Tripartite MoU (GIZ–ESCCI–Ozone Cell)</li> <li>• Oversight by Project Implementation Committee chaired by JS, Ozone Cell, MoEF&amp;CC</li> </ul> </li> </ul>
<b>Equipment Support (Implemented by UNDP)</b>	<ul style="list-style-type: none"> <li>❖ Strengthening of 120 ITIs with latest RAC training infrastructure</li> <li>❖ Equipment finalised and procured in consultation with DGT/MSDE, IIT Madras, RAMA &amp; stakeholders</li> <li>❖ Equipment delivered to 70 ITIs (till 18<sup>th</sup> December, 2025)</li> <li>❖ Equipment to be delivered to 50 ITIs (by March, 2026)</li> <li>❖ Tools for certified technicians and RAC service centres to be implemented in 2026</li> </ul>

#### Proposal for consideration of ESC:

- (i) To note the progress of servicing sector activities.



## AGENDA ITEM 4

### HFC Demonstration Projects approved by Ex-Com

<b>Background</b>	<ul style="list-style-type: none"> <li>❖ Demonstration projects being implemented to have on the ground experience in transitioning to low-GWP alternatives, primarily in refrigeration and air-conditioning manufacturing sectors.</li> <li>❖ Learnings can be incorporated during HFC Phase-down</li> </ul>
<b>Projects Approved (93rd ExCom, Dec 2023)</b>	<ul style="list-style-type: none"> <li>❖ Voltas Ltd (UNDP): Conversion from <b>R-407C/R-410A to HFC-32</b> in light commercial Acs (<b>US\$ 0.42 m</b>)</li> <li>❖ Rockwell Industries Ltd (UNDP): Conversion from <b>HFC-134a to R-290</b> in commercial refrigeration including technical assistance for Energy efficiency enhancement (<b>US\$ 0.57 m</b>)</li> </ul>
<b>Implementation period- 2024-25</b>	<ul style="list-style-type: none"> <li>❖ Godrej &amp; Boyce Mfg. Co. Ltd (GIZ Proklima): <b>Development of R-290-based energy-efficient rotary compressor</b> with microchannel heat exchanger (<b>US\$ 1.85 m</b>)</li> </ul>
<b>Reporting of progress to Ex-Com</b>	<ul style="list-style-type: none"> <li>❖ Progress reports to be submitted to 98th ExCom (May 2026).</li> </ul>
<b>Implementation Status</b>	<ul style="list-style-type: none"> <li>❖ <b>Rockwell Industries:</b> Technology conversion completed.</li> <li>❖ <b>Voltas Ltd:</b> Implementation ongoing; extension sought till <b>March 2026</b>.</li> <li>❖ <b>Godrej &amp; Boyce:</b> Development of compressor for room ACs micro channel heat exchanger compatible to R-290 technology completed.</li> </ul>

#### Proposal for consideration of ESC:

To note the following:

- (i) MoA signed between Ozone Cell and enterprises
- (ii) To note the progress on implementation





## AGENDA ITEM 5

### HFC phasedown Strategy for implementation of the Kigali Amendment

<b>Background</b>	<ul style="list-style-type: none"> <li>❖ India ratified the Kigali Amendment (Aug 2021; in force Dec 2021) for phase-down of HFCs (high GWP: 12–14,000).</li> <li>❖ Phase-down schedule for India: 10% (2032) → 20% (2037) → 30% (2042) → 85% (2047); 15% service tail</li> <li>❖ Baseline: Avg. of 2024–26   Freeze: 2028</li> </ul>
<b>Actions Undertaken</b>	<ul style="list-style-type: none"> <li>❖ <b>Licensing system for HFCs</b> operational (DGFT, based on Ozone Cell recommendations).</li> <li>❖ <b>HFC data reporting</b> (production, import, export, consumption) <b>commenced from 2022.</b></li> <li>❖ <b>23 national awareness workshops conducted</b> with line ministries, SPCBs &amp; industry</li> </ul>
<b>National Strategy – Progress</b>	<ul style="list-style-type: none"> <li>❖ Identified <b>HFCs &amp; blends</b> produced/imported/consumed and <b>key user sectors</b> (RAC, foams, aerosols, pharma, firefighting, solvents, etc.).</li> <li>❖ <b>Sectoral growth trends</b> finalised (BAU &amp; intervention scenarios).</li> <li>❖ <b>Alternatives mapped</b> using TEAP Reports and literature.</li> <li>❖ Draft HFC Phase-down Strategy.</li> </ul>
<b>Way Forward</b>	<ul style="list-style-type: none"> <li>❖ Stakeholder &amp; inter-ministerial consultations and finalisation of National HFC Phase-down Strategy.</li> <li>❖ <b>Amendment in ODS Rules</b> to include HFCs as controlled substances.</li> </ul>

**ESC to note progress on activities post-ratification of Kigali Amendment by India**





## AGENDA ITEM 6

### Key outcomes of Montreal Protocol Meeting

- Executive Committee
- Meeting of the Parties
- Open Ended Working Group (OEWG ) of the Parties to the Montreal Protocol (OEWG)

### Meetings of Ex-Com – Significant Outcomes

- ❖ 2nd tranche funding approved for India's HPMP Stage-III.
- ❖ Acceptance of final progress report for HPMP Stage-II resulting in project closure.
- ❖ Finalization of cost-funding guidelines for HFC phase-down in Article-5 countries.
- ❖ Approval of projects of Article-5 countries.

### Open Ended Working Group (OEWG)- Significant Outcomes

- ❖ Conference Room Papers (CRPs) introduced by Parties for taking decisions at MOP on HFC-23 emissions, Very Short Lived Substances (VSLs), feedstock uses, MDIs alternatives, atmospheric monitoring and lifecycle refrigerant management



## AGENDA ITEM 6 (Contd...)

### Meeting of Parties- Significant Outcomes

#### Decisions on Key policy issues:

- ❖ TOR approved for MLF replenishment (2027–2029).
- ❖ Decision on HFC-23 emissions and reporting- SAP and TEAP to give additional information
- ❖ Adoption of decisions on Very Short Lived Substances (VSLS), feedstock uses, MDIs alternatives, atmospheric monitoring and lifecycle refrigerant management in the interest of Article 5 countries.
- ❖ India elected to the member of ExCom for 2026.

#### Proposal for consideration of ESC:

To note the outcomes of the Montreal Protocol meetings



# AGENDA ITEM 7

## Reporting Items

- ❖ Issuance of quota order i.e. 13388.956 MT for HCFC-22 production for non-feedstock applications for 2025.
- ❖ Celebration of World Ozone Day during 2024 and 2025 at Delhi.
- ❖ Submission of data on production, export, import and consumption of ODS and HFCs to the Ozone Secretariat and Multilateral Fund Secretariat for the years 2023 and 2024.
- ❖ Issuance of registration since last ESC to 374 enterprises (as Producer – 1 Nos; User-23 Nos; Importer/Exporter-3 Nos and Seller-347 Nos).
- ❖ Issuance of recommendation to DGFT for 194 applications (import of ODSs-15, export of ODSs-34, import of HFCs- 64 and export of HFCs- 81).
- ❖ Project with CIPET, DCPC for handholding participating foam manufacturing enterprises in HPMP Stage-II is completed and final progress report accepted by Ex-Com of MLF. Communication of no claim of Bank Guarantee for INR 1,04,00,670.
- ❖ Progress of activities carried out by 8 IITs (Roorkee, Madras, Kharagpur, Varanasi, Hyderabad, Tirupati, Patna and Kanpur)

**ESC to note the above items**



**THANK YOU**