

## India Surpasses Montreal Protocol Targets

By IAS Toppers | 2023-12-06 15:15:00



### India Surpasses Montreal Protocol Targets

The **Ministry of Environment** and the **United Nations Development Programme (UNDP)** have recently released a report stating India has **surpassed Montreal Protocol targets**.



[Ref - The Economic Times]

### **Key highlights of the Report:**

- India has phased out the ozone-depleting and climate-warming chemical **1,1-Dichloro-1-fluoroethane (HCFC 141b)**.
- Surpassing the **35%** phase-out target for **Hydrochlorofluorocarbons (HCFCs)**, India has achieved a **44% reduction**.
- India has achieved **33% reduction** in **emission intensity of the economy** in 2019, surpassing the **2030** target.
  - The **emission intensity of the economy** refers to the total amount of greenhouse gases emitted **for every unit increase of gross domestic product (GDP)**.
- These measures have not only helped in **safeguarding the ozone layer** but also significantly reduced **greenhouse gas emissions**.
- **Cooling** is crucial in residential, **commercial, cold-chain, transport, and industries**.
- Anticipated demand rise due to **economic growth, income, population, and urbanization** led to the **India Cooling Action Plan (ICAP)**.

### **About India Cooling Action Plan (ICAP):**

- **ICAP** was launched in **2019** by the **Ministry of Environment, Forests and Climate Change**.

- It provides a **20-year perspective** and outlines **actions needed** to provide access to **sustainable cooling**.
- **Targets** under ICAP:
  - **Reduce cooling demand** across sectors by **20-25%** by 2037-38,
  - **Reduce refrigerant demand** by **25-30%** by 2037-38,
  - **Reduce cooling energy** requirements by **25-40%** by 2037-38,
  - Recognise “**cooling and related areas**” as a thrust area of research under National Science and Technology Programme,
  - **Training and certification** of 100,000 servicing sector technicians by 2022-23, synergizing with **Skill India Mission**.

### **About The Montreal Protocol:**

- The **Montreal Protocol** is a multilateral environmental agreement that **regulates** the production and consumption of **Ozone-depleting substances (ODS)**.
- It was adopted on **16 September 1987**.
  - **World Ozone Day** is celebrated on this day in remembrance of the adoption of the Montreal Protocol.
- These chemicals damage the **stratospheric ozone layer**.
  - The **stratospheric ozone layer** protects humans and the environment from **harmful levels of ultraviolet radiation** from the sun.
- It phases down the **consumption and production of the different ODS** in a step-wise manner.
- There are **different timetables** for developed and developing countries (**Article 5 countries**).
- All parties have **specific responsibilities** related to the **phase-out** of the different groups of ODS, control of ODS trade, data reports, license to control ODS imports and exports, etc.
- **Developing** and **developed** countries have **equal but differentiated responsibilities**.
- Both groups of countries have **binding, time-targeted, and measurable commitments**.
- The substances controlled by the treaty are listed as:
  - Annexes A (**Chlorofluorocarbons (CFCs), halons**),
  - Annexes B (Other halogenated CFCs, **Carbon tetrachloride, Methyl chloroform**),
  - Annexes C (**HCFCs**),
  - Annexes E (**Methyl bromide**), and
  - Annexes F (**Hydrofluorocarbons (HFCs)**).
- These protocols also make important contributions to the realization of the **UN Sustainable Development Goals (SDGs)**.

## **MONTREAL PROTOCOL CONTRIBUTES TO THE**



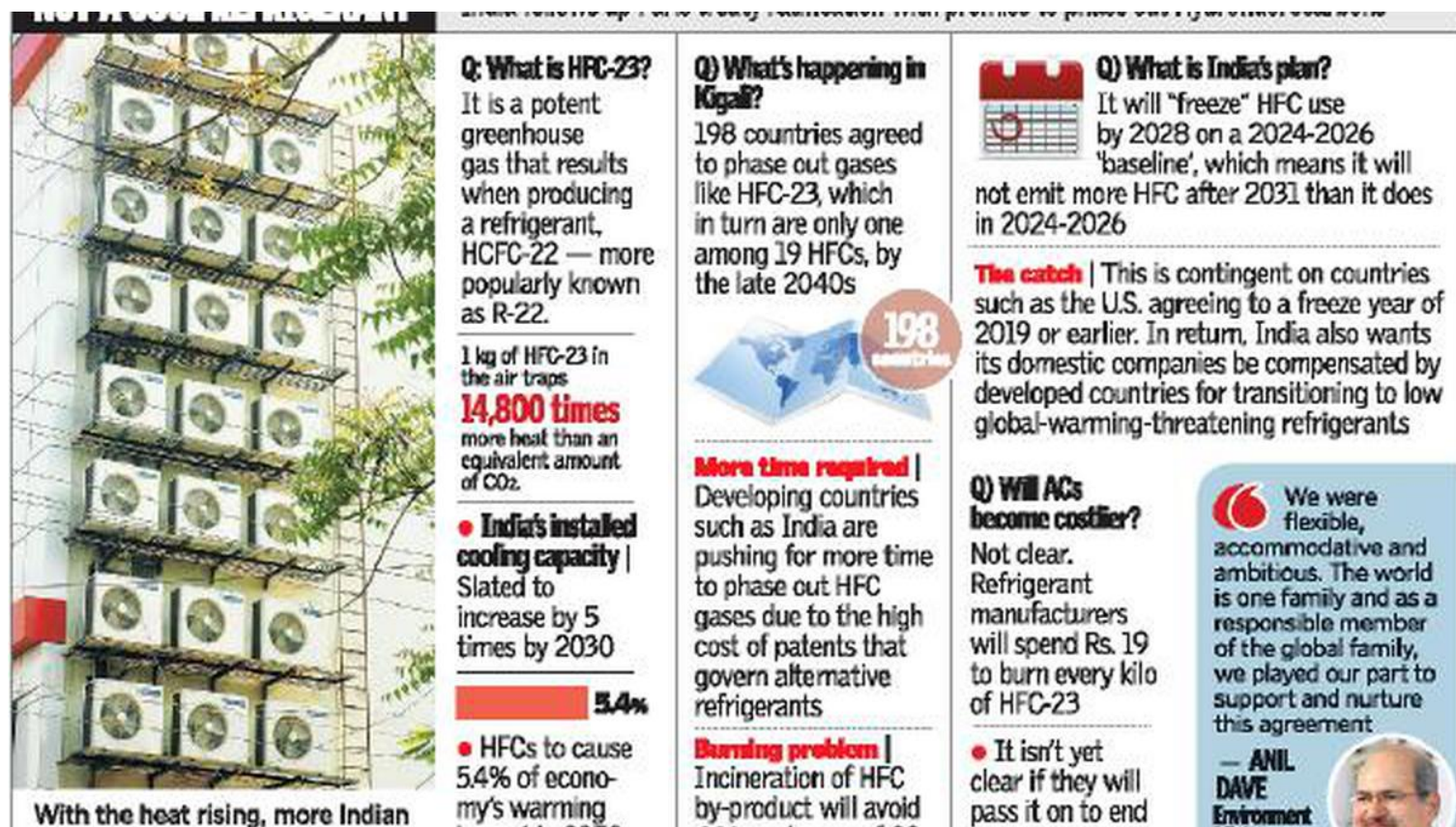


[Ref - UNEP]

## Phase-out of HCFCs - The Montreal Amendment:

- **HCFCs** are gases used in **refrigeration** and **air-conditioning (AC)** but they are being phased out since they **deplete the ozone layer**.
- These are both **ODS** and powerful **greenhouse gases**.
- The most commonly used HCFC is nearly **2,000 times more potent** than carbon dioxide (CO<sub>2</sub>) in terms of its **global warming potential (GWP)**.
  - **GWP** is a measure of how much energy the emissions of 1 ton of a gas will **absorb** over a given time, relative to the emissions of **1 ton of carbon dioxide (CO<sub>2</sub>)**.
  - The **larger the GWP**, the more that a given gas **warms the Earth compared to CO<sub>2</sub>** over that time.

## Phase down of HFCs - The Kigali Amendment:



The infographic is divided into several sections. On the left, a photograph shows a building facade covered with numerous air conditioning units. Below this, text states 'With the heat rising, more Indian'. The main body contains several Q&A blocks. One block explains that HFC-23 is a potent greenhouse gas, more popularly known as R-22, and that 1 kg of it traps 14,800 times more heat than an equivalent amount of CO<sub>2</sub>. Another block mentions India's installed cooling capacity is slated to increase by 5 times by 2030. A bar chart shows HFCs causing 5.4% of the economy's warming. A world map highlights 198 countries involved in the Kigali Amendment. A section titled 'More time required' notes that developing countries like India are pushing for more time to phase out HFC gases due to the high cost of alternative refrigerants. A 'Burning problem' section states that incineration of HFC by-product will avoid... Another Q&A block asks 'What's happening in Kigali?' and mentions 198 countries agreed to phase out gases like HFC-23 by the late 2040s. A section titled 'What is India's plan?' states India will 'freeze' HFC use by 2028 on a 2024-2026 'baseline'. A 'The catch' section explains this is contingent on countries like the U.S. agreeing to a freeze year of 2019 or earlier. A Q&A block asks 'Will ACs become costlier?' and notes that refrigerant manufacturers will spend Rs. 19 to burn every kilo of HFC-23. A quote from Anil Dave of Environment mentions being flexible and ambitious.

**Q: What is HFC-23?**  
It is a potent greenhouse gas that results when producing a refrigerant, HCFC-22 — more popularly known as R-22.

1 kg of HFC-23 in the air traps **14,800 times** more heat than an equivalent amount of CO<sub>2</sub>.

• **India's installed cooling capacity** | Slated to increase by 5 times by 2030

**5.4%**

• HFCs to cause 5.4% of economy's warming

**Q: What's happening in Kigali?**  
198 countries agreed to phase out gases like HFC-23, which in turn are only one among 19 HFCs, by the late 2040s

**More time required** | Developing countries such as India are pushing for more time to phase out HFC gases due to the high cost of patents that govern alternative refrigerants

**Burning problem** | Incineration of HFC by-product will avoid

**Q: What is India's plan?**  
It will "freeze" HFC use by 2028 on a 2024-2026 'baseline', which means it will not emit more HFC after 2031 than it does in 2024-2026

**The catch** | This is contingent on countries such as the U.S. agreeing to a freeze year of 2019 or earlier. In return, India also wants its domestic companies be compensated by developed countries for transitioning to low global-warming-threatening refrigerants

**Q: Will ACs become costlier?**  
Not clear. Refrigerant manufacturers will spend Rs. 19 to burn every kilo of HFC-23

• It isn't yet clear if they will pass it on to end

**We were flexible, accommodative and ambitious. The world is one family and as a responsible member of the global family, we played our part to support and nurture this agreement**

— **ANIL DAVE**  
Environment

[Ref - TH]

- **Hydrofluorocarbons (HFCs)**, were introduced as **non-ozone-depleting alternatives** to support the timely **phase-out of CFCs and HCFCs**.
- These are now used in **ACs, refrigerators, aerosols, foams** and other products.
- Uncontrolled growth in **HFC emissions** poses challenges to keep **global temperature rise** at or below **2°C** this century.
- The **Parties to the Montreal Protocol** reached an agreement at their **28th Meeting of the Parties** in **2016** in **Kigali, Rwanda** to phase down HFCs.

