Global Cooling Pledge

Why in news?

Around 63 countries signed up the world's 1st ever pledge to drastically cut cooling emissions at the ongoing COP28 climate summit in Dubai.

Global Cooling Pledge
• **Joint initiative**- United Arab Emirates as host of COP28 and the *UNEP-led 'Cool Coalition'*. • It is the world's first collective focus on energy emissions from the cooling sector. • **Passive cooling strategies**- It outlines actions such as insulation, natural shading, ventilation and reflective surfaces, higher energy efficiency standards and a rapid phase down of climate-warming hydrofluorocarbon (HFC) refrigerants. • **Aim-** It commits the countries to reduce their cooling emissions by at least 68% by 2050. • **Outcome-** It could reduce the projected 2050 emissions from business-as-usual cooling by around 3.8 billion tons of CO2 equivalent.

What are the sources of cooling emissions?

Cooling emissions are essentially emissions generated from refrigerants, used in appliances like ACs and refrigerators, and the energy used for cooling.

- **Coolants-** They allow the refrigeration process to change the state quickly and absorb and release heat to enable cooling process.
- **Chlorofluorocarbon (CFCs) -** It was most used refrigerant, the increased levels of CFCs in the atmosphere were responsible for abnormally low ozone concentrations in Antarctica.

Montreal Protocol is an agreement signed in 1987 that led to freeze the production and consumption of ozone-depleting substances including CFCs.

- **Alternatives for CFC-** CFCs were largely replaced by two groups of chemicals, hydrofluorocarbons (HFCs) and hydro chlorofluorocarbons (HCFCs), but they presented a new problem.
- They don't damage ozone layer but absorb infrared radiation, trapping heat inside the atmosphere rather than letting it escape back into space, generating a greenhouse effect that warms Earth.
- As per Climate and Clean Air Coalition even relatively small amounts of HFCs contribute significantly to near-term warming as greenhouse gases which are hundreds to thousands of times more potent than carbon dioxide (CO2) per unit of

mass.
    - *HFC-134a*, a form of HFC and most commonly used in domestic fridges, has a global warming potential of 3,400 times that of CO2.

- **Fossil fuels-** Fossil fuels such as coal, oil and gas are by far the largest contributor to climate change, accounting for over 75% of greenhouse gas emissions and nearly 90% of all CO2 emissions.

As per report by United Nations Environment Programme (UNEP) and the International Energy Agency the number of global cooling devices is expected to jump from 3.6 billion to 9.5 billion by 2050.

Commitments pledged in Global Cooling Pledge
• Ratify Kigali Amendment by 2024. • Support robust action through the *Montreal Protocol Multilateral Fund* for early action to reduce HFC consumption. • Establish *Minimum Energy Performance Standards* (MEPS) for air conditioning by 2030. • Include cooling emissions in countries overall climate action plans, called Nationally Determined Contributions. • Publish own *national cooling action plans* by 2026. • Support the deployment of highly efficient air conditioning technologies. • Establish *national model building energy codes* by 2030. • Pursue the life cycle management of fluorocarbons through the *Initiative on Fluorocarbons Life Cycle Management*. • Support initiatives such as United Nations Environment Programme-led Cool Coalition, to advance global cooperation and domestic actions. • Support collaborative research, innovation, and deployment activities at the local and international level.

What are the benefits of the Global Cooling Pledge?

- **Cooling accessibility**- Around 3.5 billion more people can enjoy refrigerators, air conditioners or passive cooling by 2050, improving their health and well-being.
- **Lower electricity bills**- End users can save 1 trillion dollars in 2050 and 17 trillion dollars cumulatively from 2022 to 2050 by using less power for cooling.
- **Reduced peak power demand**- The power grid can be relieved by cutting peak power requirements by 1.5 to 2 terawatts (TW), which is almost twice the European Union’s current capacity.
- **Cut investments**- The need for building new power plants can be avoided by saving 4 to 5 trillion dollars in power generation investments.

What lies ahead?

- **Kigali amendment**- It is an amendment to Montreal Protocol signed by 150 countries in 2016, to reduce HFC consumption by 80% by 2047.
    - If achieved, this could avoid more than 0.4 degree Celsius of global warming by

2100.

- **Climate friendly chemicals**- The phasing-out of HFCs would promote the use of natural refrigerants such as ammonia, certain hydrocarbons, and CO2 in cooling devices which have lower or zero global warming potential.
- **Proper disposal**- Most of the HFCs and HCFCs take place at the appliance's end of life, consumers and authorities need to dispose of them properly.
    - Proper management and reuse of potent refrigerant gases could slash 100 billion gigatons of global CO2 emissions between 2020 and 2050.
- **Sustainable buildings**- Improving insulation materials and constructing buildings with large openings for better ventilation can help reduce heat inside, this could cool buildings without the use of AC.
- **Holistic approach**- Sustainable cooling can be affordable if governments take an integrated approach, one that emphasizes passive cooling, mandates energy efficiency and phases out damaging refrigerants while offering targeted financial support to vulnerable populations.

References

1. Indian Express- Global Cooling Pledge at COP 28
2. UNEP- Global Cooling Pledge

