

7. Global Cooling Watch 2025 – Environment

The United Nations Environment Programme (UNEP) released its Global Cooling Watch 2025 report, at the 30th UN Climate Change Conference (COP30) in Belém, Brazil.

About the Global Cooling Watch Series

Purpose and Publisher – The Global Cooling Watch Series is a flagship assessment published by UNEP (United Nations Environment Programme) in collaboration with the Cool Coalition, a multi-stakeholder global platform. It evaluates global cooling demand, emissions trajectory, technology trends, and equitable access to cooling solutions. Acts as a scientific anchor for global climate debates, especially during COP events.

Why Cooling Matters – Cooling is now a development need, a public health necessity, and an essential service in –

1. Heat protection
2. Medical supply chains (vaccines, medicines)
3. Food preservation
4. Sustainable agriculture
5. Safe housing and urban livability

Understanding Business-as-Usual (BAU) in the Report

BAU is a reference scenario where – No new climate or energy policies are introduced beyond existing commitments. Technology adoption follows present patterns. Population growth, urbanisation, and income levels continue as projected. BAU serves as a baseline against which sustainable cooling pathways are compared.

Key Findings of the Global Cooling Watch Report

A. Cooling Demand Surge – Installed cooling capacity expected to rise –

1. From 22 TW (2022)
2. To 68 TW (2050) under BAU

Drivers –

1. Rapid urbanisation
2. Population growth
3. Rising middle-class incomes
4. Extreme heat events linked to climate change

By 2050, cooling will be one of the largest sources of global electricity demand.

B. Cooling-Related Emissions – Cooling emissions projected to rise from – 4.1 Gt CO₂e (2022) To 7.2 Gt CO₂e (2050). This occurs despite improvements in energy efficiency, due to –

1. Surge in AC ownership
2. Climate warming
3. Fossil-heavy power grids in developing nations

C. Extreme Heat Trends – Heatwaves now the deadliest climate hazards globally. Urban Heat Island effects increase temperatures by 5–10°C in dense city cores. This increases cooling demand, energy consumption, and health risks.

D. The Cooling Equity Crisis – Over 1 billion people lack access to basic cooling services today. Without interventions, this number may triple by 2050. The most vulnerable include –

1. Elderly populations
2. Women and children
3. Smallholder farmers
4. Low-income households
5. Urban slum dwellers

Populations in Africa and South Asia, where cooling gaps are largest. Lack of cooling affects –

1. Heat safety,
2. Agricultural product preservation,
3. Vaccine temperature stability,
4. Food security,
5. Livelihoods of farmers and informal workers.

UNEP's Sustainable Cooling Pathway

A. What the Pathway Achieves – 64% reduction in global cooling emissions by 2050. Saves USD 43 trillion in avoided –

1. Electricity investments
2. Grid expansion costs
3. Peak-load infrastructure

When combined with power sector decarbonisation – Cooling emissions can fall by 97%, nearing net-zero by mid-century.

B. Why It Matters – Provides a cost-effective climate mitigation strategy. Offers co-benefits –

1. Cleaner air
2. Lower household electricity bills
3. Reduced peak-load stress
4. Better urban livability
5. Greater protection for vulnerable groups

Key Components of the Sustainable Cooling Pathway

1. Passive Cooling Measures – Passive cooling reduces heat gain before mechanical cooling is required.

Tools –

1. Cool roofs and cool walls
2. Shaded streets and courtyards
3. Cross ventilation
4. Reflective materials

Green infrastructure such as –

1. Urban trees
2. Green roofs
3. Parks

Impact – Reduces indoor temperatures by up to 8°C. Cuts household cooling energy demand by 30%. Reduces heat stress for vulnerable populations.

2. Low-Energy and Hybrid Systems – Combining efficient fans with high-efficiency ACs results in –

1. Lower energy use
2. Reduced carbon emissions
3. Cost savings for consumers

Supports cooling in hot but low-humidity climates, common in India.

3. High-Efficiency Cooling Equipment

Promotes –

1. Super-efficient air conditioners
2. District cooling systems
3. Solar-driven cooling solutions
4. Next-generation non-HFC refrigerants

Supports global compliance with – Kigali Amendment (2016) to the Montreal Protocol. Mandates

phasedown of HFCs, potent greenhouse gases.

Policy Recommendations of the Report

1. Cooling as a Public Good – Cooling should be treated like –

1. Drinking water
2. Energy
3. Public health infrastructure

It must be integrated into –

1. Nationally Determined Contributions (NDCs)
2. National Adaptation Plans (NAPs)
3. Urban planning frameworks
4. Building codes
5. Heat-health action plans

2. Urban Cooling Strategies – Empower local governments to implement –

1. Urban forests
2. Water bodies
3. Cool pavements
4. Ventilated building layouts
5. High-albedo materials

Potential Temperature Reduction – Citywide temperatures can drop by up to 2–5°C, Localized cooling pockets could see reductions up to 25°C (surfaces).

3. Reform Global Financial Architecture

Redirect climate finance to –

1. Passive cooling infrastructure
2. Energy-efficient cooling appliances
3. Low-income community cooling programs

Enhance funding through –

1. Green Climate Fund
2. Multilateral development banks (MDBs)
3. Just Energy Transition Partnerships (JETPs)

Global Initiative – "Beat the Heat" Campaign

Launch & Partners – Launched at COP30 by UNEP and Brazil's Presidency.

Scope – Includes 187 global cities, including –

1. Rio de Janeiro
2. Nairobi
3. Jakarta

Framework supports –

1. Heat-action plans
2. Cooling shelters
3. Urban greening programs
4. Local cooling policies

Global Cooling Pledge – 72 countries have signed the pledge to cut cooling emissions by 68% by 2050.

Yet only 54 countries have aligned national policies, indicating implementation gaps.

India's Initiatives in Sustainable Cooling

1. India Cooling Action Plan (ICAP), 2019 – World's first national-level cooling plan. Major goals by 2037–

1. 20–25% reduction in cooling demand
2. 25–30% reduction in refrigerant demand
3. 30–40% improvement in cooling appliance efficiency

Covers –

1. Space cooling
2. Cold chains
3. Transport cooling
4. Refrigeration sectors

2. National Mission on Enhanced Energy Efficiency (NMEEE) – Promotes –

1. Efficient industrial cooling
2. Demand-side management
3. Energy-saving technologies

Includes PAT (Perform, Achieve & Trade) for industries.

3. Eco-Niwas Samhita, 2018 – India's residential building energy code. Mandates –

1. Thermal comfort
2. Passive cooling designs
3. Efficient building envelope standards

4. Telangana Cool Roof Programme (2023)

Aims to –

1. Reduce urban heat
2. Expand adoption of cool roofs
3. Lower energy bills in low-income housing

Serves as a model for other Indian states.

Source – <https://www.downtoearth.org.in/climate-change/un-report-warnscooling-demand-to-triple-by-2050-calls-for-urgent-shift-to-sustainable-cooling>

