

Committee of the Permanent Representatives
Subcommittee meeting
Nairobi, 21 September 2023
10:00 – 13:00 and 15:00 – 18:00 (GMT+3)
Hybrid meeting
Conference Room 1 and Microsoft Teams

Agenda item 4: Briefing on the Global Cooling Pledge: Accelerating the transition to sustainable cooling for climate mitigation and adaptation

This background document has been developed by the Secretariat to inform the Committee of Permanent Representatives on the development and outlook of the Global Cooling Pledge, which was officially announced by the COP28 President Designate and UNEP Executive Director, alongside the Climate Advisor to the UN Secretary General and Ministers from several countries in January 2023.

Following the presentation, Member States and Stakeholders are invited to engage in an exchange of views with the Secretariat.

Committee of Permanent Representatives/Member States

COP28 UAE Global Cooling Pledge – Accelerating the Transition to Sustainable Cooling for Climate Mitigation and Adaptation.

Background document

Date: 21 September 2023

Location: Nairobi, Kenya

Background information

In early 2022, the COP28 UAE presidency invited UNEP as the host of the [Cool Coalition](#) to become the delivery partner to support the mobilization of transformative measurable commitments on cooling by state and non-state actors. In January 2023, the COP28 President Designate and UNEP Executive Director [officially announced](#) this collaboration and the development of a *Global Cooling Pledge*, alongside the Climate Advisor to the UN Secretary General and Ministers from several countries.

Achieving the *Global Cooling Pledge* targets would cut emissions by approximately 78 billion tonnes CO₂e between 2022 - 2050, improve the lives of hundreds of millions, and realize huge financial savings for governments and end-users alike ([Annex 1 Global Cooling Pledge](#)).

The Global Cooling Pledge has been developed drawing on UNEP and UNEP-led Cool Coalition's technical expertise and stakeholder consultations with over 100+ non-state actors and nearly 40 countries ([Annex 2: Countries Consulted](#)). The consultations concluded at the G20 Energy Ministerial / CEM14 High-Level Dialogue on Cooling, where the COP28 President Designate called on all countries to join the Global Cooling Pledge (see media link [here](#)).

The Urgency and Benefits of Action on Sustainable Cooling

Lack of cooling access threatens people, health, nutrition, and prosperity.

- In a warming world, access to cooling is not a luxury. As the recent IPCC report sets out, human-induced climate change has resulted in extreme heat related deaths and illnesses in all regions ([IPCC, 2022](#)).
- Over 1.5 million people die each year because of the lack of cold storage and refrigerated transport for vaccines.
- Of the total food produced for human consumption, an estimated 14 per cent is lost before the food reaches the consumer, due to inadequate refrigeration and cold chains (UNEP-FAO, 2022).
- Higher temperatures will impact workforce productivity estimated at 2.2% of working hours worldwide, the equivalent of 80,000 full-time jobs lost or up to 6% GDP loss annually.
- One billion people face immediate risks from lack of access to cooling, the vast majority in Asia and Africa. (SEforALL 2023). 470 million people live in poor rural areas without access to safe food and medicine and 630 million live in hotter, poor urban slums with insufficient cooling to protect them against heatwaves.

We need to increase access to cooling but doing so with business-as-usual will be a disaster for the planet. Cooling is a blind spot in the energy transition and one of the biggest contributors to global warming.

- **Conventional cooling – such as refrigeration and air conditioning– causes up to 7% of all global emissions. If left unchecked, emissions from cooling are expected to double by 2030 and triple by 2100, driven by heat waves, population growth, urbanization, and a growing middle class.**
- **Cooling is top driver of electricity and peak demand, already straining our grids. By 2050, the energy requirement for space cooling is predicted to grow 300% to 6200 TWh; making it a key driver of global electricity and peak demand over the next three decades.**
- **Unchecked, this cooling demand would consume much of the world's projected renewables capacity. In 2018, 100 Gigawatts of new solar capacity was offset by the electricity needs for new room air conditioners.**
- **If we are serious about reversing current trends, we cannot go about cooling our planet with a business-as-usual approach. We need to accelerate the transition towards sustainable cooling.**

Fortunately, solutions exist to providing cooling solutions for all while keeping the planet cool.

- **Solutions exist that can advance the internationally agreed goals of the Paris Climate Agreement; the Sustainable Development Goals; and the Montreal Protocol's Kigali Amendment.**
- **By turning concrete jungles into urban forests, we can keep our cities cooler using less power and mitigating the urban heat island effect. Urban parks can reduce ambient daytime temperature by an average of 1 °C Green roofs can cut energy use by 10 to 15%. Building design, with passive and nature-based features, offers great potential for mitigation and adaptation.**
- **District cooling – a network of pipes that provides cooling to multiple buildings – is 5-10 times more energy efficient than conventional cooling. District cooling lowers CO2 emissions and operating costs improves load balancing at peak hours and allows the integration of renewables.**
- **Off-grid cooling solutions like solar fridges can protect vaccines from power outages or maintain cold chains where grid electricity is not available.**
- **More efficient air conditioners cut CO2 emissions from space cooling in half which, combined with cleaner power sources, can radically reduce overall emissions and improve air quality.**
- **Development of residential cooling solutions that have less climate impact than today's standard RAC units could prevent up to 100 gigatons (GT) of CO2-equivalent emissions by 2050.**

Getting cooling right offers a three-in-one opportunity to cut global warming, improve the lives of hundreds of millions of people, and realize huge financial savings.

- **The Kigali Amendment to the Montreal Protocol can achieve 0.4 degree avoided warming. Coupling this transition with demand reduction and greater energy efficiency of cooling can double the climate benefits.**
- **Coordinated international actions to improve the cooling industry's energy efficiency together with the transition to climate-friendly refrigerants avoid as much as four- eight years of global GHG emissions (UNEP-IEA 2019).**

- **Making cooling more efficient would increase affordability and disposable income; reduce end-user costs, and save as much as USD 3-4 trillion in savings by 2050 by reducing peak loads on electricity networks and avoiding the need to build new capacity (UNEP Cooling Spotlight, 2023, forthcoming)**
- **Just halving food loss with refrigeration and food cold chains could feed 1 billion undernourished people (UNEP-FAO, 2022).**
- **Done right, sustainable cooling can help alleviate poverty, reduce food loss, improve health, manage energy demand, and combat climate change.**

To seize this opportunity, we need to scale up policy action, access to low-cost finance, and cross-sector, cross stakeholder coordination.

- **We need a mix of policies to drive demand reduction and increase affordability of the best available technologies which exist in the market today.**
- **That means integrated policies such as Minimum Energy Performance Standards and Labels that incorporate low-GWP requirements; buildings codes that integrate passive design and sustainable material requirements; urban planning and design that can harness the power of nature-based solutions for cooling.**
- **It also means setting a whole of government and whole of society coordinated approach to increase access to sustainable cooling and cold chain through National Cooling Action Plans - a policy commended by the UN Secretary General.**
- **And it means incorporating these policies in the NDCs to the Paris Agreement, KIPS to the Kigali Amendment and helping unlock low-cost finance for the transition to sustainable cooling.**
- **These policies are captured in the Global Cooling pledge, providing a unique opportunity to act.**

Unique Opportunity to Act – COP28 UAE Global Cooling Pledge

Against this backdrop and recognizing the adaptation and mitigation benefits of sustainable cooling, the COP28 Presidency of the United Arab Emirates is spearheading the Global Cooling Pledge with support from the UNEP-led Cool Coalition. The implementation of the Kigali Amendment to the Montreal Protocol to phase down hydrofluorocarbons (HFCs) could avoid up to 0.4 °C of global warming by the end of this century. By achieving this Pledge, we double the climate benefits while mitigating 68% of cooling related GHG emissions – or 78 billion tonnes equivalent between 2022-2050, while improving access to cooling for resilience to rising heat, greater food security and local development.

The voluntary Pledge intends to raise ambition and international cooperation through collective targets on reduction cooling-related emissions, improving energy efficiency alongside the HFC phase-down, and increasing access to sustainable cooling for the most vulnerable. It also sets out policy commitments to achieve these targets. The Pledge further offers a menu of options from which countries can select additional actions relevant to their priorities. Recognizing the cooling challenge requires action from non-state actors, there are also commitments specific for local governments, for private sector and for all other non-state actors to support the pledge.

Ongoing efforts

UNEP and a small number of partners [launched the Cool Coalition](#) in 2019 as a global initiative to advocate for and take comprehensive action on cooling. The Coalition has its origins in the First

Global Conference on Synergies between the 2030 Agenda and the Paris Agreement, where partners defined 'comprehensive' in the area of cooling as delivering on the Paris Agreement, the Sustainable Development Goals, and the Kigali Amendment to the Montreal Protocol. The UNEP-led [Cool Coalition](#) became a [transformative initiative](#) of the UN Secretary-General's Climate Action Summit in September 2019, an effort that was aided by several Cool Champions.

Looking ahead, the UNEP-led Cool Coalition members will be focusing on i) monitoring commitments to the Global Cooling Pledge; ii) supporting implementation of commitments to the Global Cooling Pledge and recommendations on cooling in the Global Climate Stocktake and the G20 communique; iii) unlocking cooling finance. More information can be found in [Annex 5: Cool Coalition History and Way Forward](#).

The Global Cooling Pledge will be launched with signatories via a Ministerial at COP28 on Energy and Industry Day on December 5. The official COP28 thematic programme highlights a *“special additional focus on cooling as a critical mitigation and adaptation factor”* (see [link](#)).

Tracking of commitments to the Global Cooling Pledge will be done through a ministerial report to subsequent COPs and through the modelling and data collection infrastructure set up for *UNEP Global Cooling Stocktake: Keeping Cool in an Increasing Hot World*. The global GHG mitigation target and baseline set in the Pledge is based on the findings and modelling undertaken for this UNEP Report which will also be launched on December 5 ([see annex 4: Global Cooling Stocktake Report](#)).

Next Steps / Recommendations for the CPR

1. Pledge Country Advisory Group

The COP28 Presidency and UNEP have since set up a country advisory group to finalize the text of the Pledge in September. Countries helping in this effort are Denmark, the Netherlands, Panama, United Kingdom, the United States. Additional countries invited: Australia, Bosnia and Herzegovina, Brazil, Cambodia, Colombia, Dominican Republic, European Commission, France, Germany, India, Japan Kenya Morocco Norway, Pakistan, Rwanda, South Africa, Tunisia, Vietnam, Tunisia.

UNEP CPR members are invited to join this effort to ensure the Global Cooling Pledge delivers ambition while meeting the requirements of different countries.

2. Global Cooling Pledge

According to the forthcoming UNEP Cooling Spotlight Report, cooling sector GHG emissions can be reduced by 68% below 2022 levels by 2050 - which translates into 78 billion tonnes of Co2e savings between 2022-2050 - through greater energy efficiency, better building codes, nature-based solutions, and faster HFC phase down where possible, while also improving access to cooling for populations to mitigate heat stress, enable productive work, reduce food loss and enhance healthcare. Therefore, it is highly recommended that countries join the Global Cooling Pledge and support the call for urgent action on sustainable cooling to protect people and deliver on the sustainable development goals, without hastening climate change.

The CPR could support this agenda by helping to mobilize their countries (i) to join the Global Cooling Pledge and (ii) to join the Cool Coalition to participate in the collaboration on knowledge exchange, science, advocacy, and joint action in support of the Pledge implementation post COP28.

To join the Global Cooling Pledge, Government ministries can send a letter to COP28UAE to Mikael Melin mikael.melin@cop28.com and UNEP-led Cool Coalition unep-coolcoalition@un.org indicating they endorse the Global Cooling Pledge and providing a point of contact for follow up.

To join the Cool Coalition, countries can be in touch with the Secretariat at unep-coolcoalition@un.org to receive and sign the common endorsement or click on this Cool Coalition website [link](#).

3. Cool Champion

From September to December, COP28 UAE plans to mobilize signatories to the Pledge at key events as outlined in Annex 3 together with the support of UNEP, UNEP-led Cool Coalition and 'Cool Champions'.

UNEP CPR members are invited to participate at these events as 'Cool Champions' to lead by example on how to act on sustainable cooling, share the scientific case for action, and encourage their peers to become Pledge signatories. H.E Dan Jørgensen, Minister for Development Cooperation and Global Climate Policy of Denmark and H.E Soipan Tuyu, Minister for Environment, Climate Change and Forestry, Kenya are 'Cool Champions'.

The UNEP hosted Cool Coalition Secretariat can be contacted at unep-coolcoalition@un.org to further discuss or address any additional questions on the Cooling Pledge or the UNEP-led Cool Coalition.

Linkages to UNEP Programme of Work

The Cooling sector is a critical sector to address the three planetary crises put forward in UNEP's Medium-Term Strategy for 2022-2025. It is responsible for 7% of global greenhouse gas emissions and these emissions will triple by 2050 under BAU, including energy sector CO₂ emissions, refrigerant emissions and emissions from food loss attributed to lack of cooling. Efficient, climate-friendly cooling is critical for adapting populations to rising heat and the resilience and security of food, health and power systems (Climate). Lack of refrigeration results in the loss of 14% of food production – and thus a major contributor to the impacts of the food system on the natural environment. Cooling is responsible for a significant and growing water demand and resource use for appliances. Nature based solutions (blue and green) are critical to lowering cooling demand and equitably adapting populations to rising heat (Nature). Finally, air quality impacts due to power production and transport cooling are significant – globally cooling accounts for 20% of power demand - and cooling systems in many countries continue to use refrigerants that deplete the ozone layer (Pollution).

Creating a global movement and political campaign to mobilize and track commitments on sustainable cooling and ensuring a strong cooperation and coordination between countries in shaping and implementing ambitious strategies and policies for sustainable cooling and mobilizing private sector, academia, finance and civil society will contribute to the following MTS Outcomes:

1. Climate action:

- Outcome 1A: Decision-makers at all levels adopt decarbonization, dematerialization and resilience pathways.
- Outcome 1B: Countries and stakeholders have increased capacity, finance and access to technologies to deliver on the adaptation and mitigation goals of the Paris Agreement.
- Direct outcome 1.1: Policymaking and decision making for climate action are informed by the latest science-based analysis and data generation.
- Direct outcome 1.2: Carbon neutrality and resilience are integrated into climate planning and policy and regulatory frameworks at all levels.

- Direct outcome 1.3: Transparency and accountability of government and non-government climate action, including from the private sector and the financial community, are strengthened.
 - Direct outcome 1.4: Sectoral partnerships and access to technologies for decarbonization, dematerialization and resilience are enhanced.
 - Direct outcome 1.6: The private sector and financial markets apply sustainability and climate-friendly standards and norms as core values of the economy.
 - Direct outcome 1.7: Public support and political engagement for climate action are catalysed.
 - Direct outcome 1.8: Societal choices have shifted towards lower-carbon products and services and sustainable lifestyles.
- 2. Nature action:**
- Outcome 2B: Sustainable management of nature is adopted and implemented in development frameworks.
 - Outcome 2C: Nature conservation and restoration are enhanced.
 - Direct outcome 2.5: Nature is integrated into national and international public health decision making.
 - Direct outcome 2.10: Sustainable value chains are adopted; product comparability is enhanced, and circularity is maximized.
 - Direct outcome 2.12: Food systems support biodiversity and environmental sustainability
 - Direct outcome 2.15: Consumer awareness and behaviours have shifted towards products and services with lower environmental and nature footprints through digital nudging, green filtering, product labelling, certification schemes and value-chain indices.
- 3. Chemicals and pollution action**
- Outcome 3B: Waste management is improved, including through circular processes, safe recovery of secondary raw materials and progressive reduction of open burning and dump sites.
 - Outcome 3C: Releases of pollutants to air, water, soil and the ocean are reduced.
 - Direct outcome 3.4: Air pollution action, sustainable mobility and clean energy are supported
 - Direct outcome 3.6 Resource efficiency and circularity in key sectors are improved.
 - Direct outcome 3.9: Use of harmful chemicals in products and processes is reduced in key sectors.
 - Direct outcome 3.11 Global advocacy catalyses the phase-out of most polluting products and practice.

Additionally, well-designed and effectively implemented actions cooling have significant potential to help achieve the SDGs, as they relate 16 of the 17 UN SDGs (IPCC, 2022), and in particular to 10 of them, Zero Hunger (SDG 2); Good Health and Well-being (SDG 3), Gender Equality (SDG 5); affordable and clean energy (SDG 7), decent work and economic growth (SDG 8), reduced inequalities (SDG 10), sustainable cities and communities (SDG 11), responsible consumption and production (SDG12), climate action (SDG 13) and partnerships for the goals (SDG 17) .

Annex 1: Global Cooling Pledge for COP28

Recognizing that, coordinated international action on sustainable cooling can save seventy-eight billion tonnes CO₂e between now-2050, improve the lives of hundreds of millions, and realize huge financial savings (UNEP 2023).

Recognizing that, access to sustainable cooling¹ is a key climate mitigation and adaptation strategy important for reducing greenhouse gas emissions, enabling productive work, supporting human well-being, reducing food loss, enhancing access to healthcare and medicines and supporting a just energy transition;

Recognizing that, without a transition to sustainable cooling, cooling as an adaptation strategy comes at a higher environmental cost, with increased GHG emissions, that the world cannot afford and therefore, adaptation and mitigation strategies must go hand in hand;

Recognizing that, to meet the Paris Agreement under the UNFCCC goal of keeping warming well below 2°C, while pursuing efforts to limit warming to 1.5°C, significant cooling emission reductions must be achieved globally by 2030 putting us on a pathway to net-zero emissions from cooling by 2050;

Recognizing that, there is a need for a transition to safe, low-GWP refrigerants, including the implementation of Kigali Amendment to the Montreal Protocol, to prevent up to 0.5°C of warming by 2100 and that coordinated action to improve cooling efficiency alongside the phase-down of hydrofluorocarbons (HFCs) could double those climate benefits (WMO-UNEP 2022);

Recognizing that, over 1 billion people lack access to sustainable cooling and a further 2.2 billion have inefficient cooling, and that disproportionately women and girls are affected (SEforALL 2022);

Recognizing that, cities are warming at twice the global average due to the 'heat island effect', warming as much as 4°C by 2100 with business-as-usual (UNEP 2021);

Recognizing that, heat-related deaths among vulnerable populations increased by 68% between 2000–2004 and 2017–2021 (Lancet 2022);

Recognizing that, increased heat stress is projected to reduce total working hours worldwide by 2.2% and global GDP by 1.8% or US\$2.4 trillion in 2030 (ILO 2019);

Recognizing that, the lack of sustainable cold chains results in the loss of 526 million tons of food production, and contributes to a significant reduction in smallholder farmers' income (UNEP-FAO 2022);

Recognizing that, space cooling accounts for 20% of global electricity consumption (UNEP, 2023) and is a top driver of global electricity demand and of generation capacity additions to meet peak power;

Recognizing that, a growing number of renewables-based cooling technologies are technically viable, economically feasible and quickly deployable at scale in rural, remote and off-grid locations (IRENA 2022);

Recognizing that the average efficiency rating of air conditioners sold would need to increase at least 50% by 2030 to achieve the Net Zero Emissions by 2050 Scenario (IEA 2021);

¹ ***Sustainable cooling*** refers to actions that put us on a pathway consistent to net zero cooling by 2050 defined by the COP26 Climate Action Pathway as being achieved through three impact areas: 1) passive cooling strategies : widespread adoption of measures that avoid or reduce the need for mechanical cooling including reducing cooling loads, smart and human centric design and urban planning; 2) super-efficient equipment and appliances: A 'race to the top' S-curve transformation where the norm is super-efficient cooling equipment and appliances powered by zero carbon energy; and 3) Market domination of safe and low GWP refrigerants, that are consistent with pathways to limit warming to under 2 degrees Celsius, across all cooling sectors and applications.

National Government Participants of the Global Cooling Pledge:

The ambition of the Global Cooling Pledge is to work together to reduce global cooling-related emissions across all sectors by at least 68 percent below 2022 levels by 2050 and to increase access to sustainable cooling substantially by 2030, by protecting vulnerable populations from the impacts of extreme heat and accelerating the adoption of sustainable cooling solutions for those in need.

This ambition will be achieved through international collaboration and the following individual government commitments which will be aggregated and monitored collectively:

Commit to complete the ratification of the Kigali Amendment by 2026, if not already completed

Commit to work together to collectively increase the average efficiency rating of new air conditioning equipment sold by 50% by 2030 from global 2022 baseline;

Commit to establish MEPSⁱ and routinely raise ambition and progress in relation to U4Eⁱⁱ model regulation guidelines, or the SEADⁱⁱⁱ product efficiency call to action, or global Best Available Technology consistent with national laws, and towards Net-Zero Emissions by 2050;

Commit to public procurement of low GWP and high efficiency cooling technologies focused on the lowest lifecycle cost in government buildings, including passive solutions, by 2030 to prime the private sector market;

Commit to establish building energy codes or guidelines^{iv} that incorporate market appropriate passive cooling and energy efficiency strategies by 2030, and encourage their adoption at the sub-national level^v;

Commit to publishing a national cooling action plan, regulation, or equivalent strategy and to reflect actions in Nationally Determined Contributions^{vi} to the Paris Agreement and Kigali Implementation Plans as appropriate;

Commit to create an enabling framework to develop and deploy sustainable cold chain, ultra-low GWP (<5 GWP) cooling solutions, district cooling, or other technologies as market appropriate in a scalable manner;

Commit to report on policies and commitments relevant to the Pledge including on annual in country sales of cooling equipment efficiency and refrigerants in collaboration with ozone officers;

Commit to support existing international cooling emission reduction and cooling access initiatives, such as those of the Cool Coalition to advance global cooperation and domestic actions;

Commit to support local and international collaborative research, innovation, and deployment activities to advance sustainable cooling including on renewable energy-based cooling solutions for food, health, and building value chains in rural, remote, off-grid locations;

Commit to review progress towards the target of the Global Cooling Pledge on an annual basis until 2030 and have a dedicated ministerial meeting at the UNFCCC Conference of the Parties;

Call on non-state actors including the private sector, financial institutions, and philanthropies to join and support implementation of the Global Cooling Pledge;

Call on other states to join the Global Cooling Pledge.

For Subnational Government participants of the pledge that do not have the authority to commit to all pledge components, shall commit to at least one of the following:

- *to create* and adopt a jurisdictional Heat Action Plan to identify heat risk exposure, locally relevant policies and solutions, financing and implementation pathways and performance metrics;
- *to public procurement* of low-global warming potential and high efficiency cooling technologies focused on the lowest lifecycle cost in government buildings by 2030 to prime the private sector market;

- *to increase* or enhance the proportion of nature-based cooling solutions within built-up city surface area targeting at least 30% of designated green or blue spaces by 2030, with demonstrable progress by 2025.

Annex 2: Countries Consulted

UNEP secretariat to the Cool Coalition and COP28 UAE co-organised consultations on the pledge at various fora including: Abu Dhabi Sustainability Week (ADSW) Regional Forums on Sustainable Development, OEWG44 of the Montreal Protocol, Bonn SB 58 of the UNFCCC, CCAC ECI meeting, Clean Energy Ministerial (CEM14) meetings and the G20 Energy Transition Working Group (ETWG) [second](#) and [third](#) meetings as well as through Cool Coalition member country consultations.

	Country	Focal Point	Engagement to date
1.	Australia	Department of Climate Change, Energy, the Environment and Water <i>Effie Klippan (designated Pledge focal point)</i>	The Asia-Pacific Forum on Sustainable Development (APFSD) and Cool Coalition Country Consultation on Pledge
2.	Cambodia	Ministry of Environment <i>Pak Sokharavuth</i>	ACEF, ESCAP, Cool Coalition Country Consultation on Pledge
3.	Chile	Ministry of Environment <i>Felipe Cortés, Oficina de Asuntos Internacionales MMA (international affairs office)</i>	Cool Coalition Country Consultation on Pledge
4.	China	National Energy Administration of China (NEA)	The Asia-Pacific Forum on Sustainable Development (APFSD)
5.	Colombia	National Ozone Unit of Colombia <i>Leydy Maria Suarez Orozco Coordinadora Nacional Unidad Técnica Ozono</i>	Cool Coalition Country Consultation on Pledge
6.	Denmark*	DANIDA <i>Anders Ørnemark (designated Pledge focal point)</i>	Cool Champion, ADSW, CEM, ETWG, Cool Coalition Country Consultation on Pledge
7.	Dominican Republic	Cambio Climático y Sostenibilidad <i>Nathalie Flores</i>	OEWG, Bonn, Cool Coalition Country Consultation on Pledge
8.	European Commission	Science and Innovation Directorate European Commissioner for Energy	CEM/G20
9.	France	Ministères Écologie Énergie Territoires	Written feedback on the Pledge ADSW, CEM, Cool Coalition Country Consultation on GCP

10	Germany	Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) <i>Moritz Weber (designated Pledge focalpoint)</i>	Written feedback on GCP
11	Ghana		ADSW / SEforALL Consultation
12	India	Ministry of Power / Bureau of Energy Efficiency	APFSD, G20 ETWG /CEM
13	Indonesia		ACEF
14	Iraq	Iraqi Embassy in Abu Dhabi	Cool Coalition Country Consultation on Pledge
15	Japan	Ministry of Environment and METI <i>Akiko Maruo (designated Pledge focal point)</i>	G20 ETWG / CCAC Cool Hub consultation
16	Kenya	Ministry of Environment	Bonn SB, OEWG to the Montreal Protocol
17	Maldives*	Ministry of Environment, Climate Change and Technology <i>Miruzza Mohamed (designated Pledge focalpoint)</i>	OEWG, ADSW, ACEF, Cool Coalition Country Consultation on Pledge
18	Morocco	Moroccan Agency for Energy Efficiency (AMEE)	Cool Coalition Country Consultation on Pledge
19	Netherlands*	Climate Envoy of the Netherlands	ADSW/ G20
20	Norway	Ministry of Climate and Environment Gunn-Eva Nordheim (<i>designated Pledge focal point</i>)	Written Feedback on the Pledge, G20/CEM, Cool Coalition Country Consultation on Pledge
21	Pakistan	Ministry of Climate Change <i>Saima Shafique</i>	OEWG
22	Panama	Ministry of Environment (MiAMBIENTE) <i>Javier Martínez Cedeño (designated Pledge focal point)</i>	Written feedback on the Pledge Bonn SB, Cool Coalition Country Consultation on Pledge
23	Republic of Korea	Ministry of Environment	G20 ETWG
24	Saudi Arabia		G20 ETWG
25	Seychelles	Minister of Environment, Energy and Climate Change	ADSW
26	Singapore	Energy Management Authority	G20 ETWG

27	South Africa*	Ministry of Energy Thebe Mamakoko (<i>designated Pledge focal point</i>)	G20 ETWG, Cool Coalition Country Consultations on the Pledge
28	Spain	Embassy to UAE	ADSW
29	Switzerland	Embassy to India	G20 ETWG
30	Tonga	Prime Minister	ADSW
31	Tunisia	National Agency for Energy Conservation	Cool Coalition Country Consultations on the Pledge
32	Turkiye	Environment Ministry	Engaging through partners on the Pledge
33	United Arab Emirates	COP28 Presidency	CEM, Bonn, OEWG, Cool Coalition Country Consultation on the Pledge
34	United Kingdom	Department for Energy Security and Net Zero	Written feedback and ACEF, CEM/G20, and Cool Coalition Country Consultation
35	United States of America*	State Department SPEC	Written feedback, Bonn SB, OEWG, Cool Coalition Country Consultation
36	Uruguay	Energy Ministry	Written feedback on Pledge
37	Vietnam*	Ministry of Natural Resources and Environment	Bonn, OEWG, Cool Coalition Country Consultation on the Pledge
38	Rwanda	Ministry of Environment	Cool Coalition Country Consultation on the Pledge
39	Zimbabwe	Energy Minister	ADSW

Annex 3: Priority Events by Region 2023

Events	Dates	Outcomes
Africa Climate Summit - Nairobi, Kenya	4 – 6 September	Cooling in NBO Declaration Kenya as a Cool Champion Rwanda as a Cool Champion

G20 Leaders' Summit – New Delhi, India	9 – 10 September	
UNEP 5 th Asia Pacific Environmental Forum of Ministers – Colombo, Sri Lanka	3 – 6 October	Maldives as a Cool Champion
MENA Regional Climate Week, Riyadh, Saudi Arabia	8 – 12 October	Saudi Arabia as a Cool Champion Morocco as a Cool Champion
LAC Regional Climate Week – Panama	23 – 27 October	Panama as a Cool Champion Dominican Republic as a Cool Champion
Asia Pacific Climate Week – Johor Bahru, Malaysia	13 – 17 November	Japan as a Cool Champion Viet Nam as a Cool Champion
2023 UN Climate Change Conference	30 November – 12 December	Ministerial Launch of Cooling Pledge Gala Dinner Energy Day - Cooling Spotlight Report Pavilions/Study Tours etc.

Annex 4: UNEP Spotlight: *Global Cooling Stocktake Report: Keeping Cool in an Increasingly Hot World*

In a warming world, cooling in all its forms is critical to protect vulnerable populations, keep food fresh from farm to fork, keep vaccines stable, workforces productive and digital economies viable. In many parts of the world life is barely tolerable without cooling and yet billions of people live without access to cooling². At the same time, conventional cooling is already greater than 7% of global GHG emissions³. Left unchecked, cooling emissions are expected to double by 2030 and triple by 2100, driven by heat waves, population growth, urbanization, and a growing middle class.

It is increasingly urgent that countries' needs for cooling and heat adaptation are met while also achieving greenhouse gas mitigation goals, conserving natural resources, and improving the local environment. This requires a rapid transition to "sustainable cooling" – cooling technologies and approaches that are accessible, affordable, and scalable, but that minimize the impacts on people and the planet, including through large reductions in greenhouse gas emissions (Khosla et al. 2021)

Yet, sustainable cooling solutions are not being widely adopted, with significant gaps in access, affordability, and information. Shining a spotlight on cooling policy trends, technology, and investment opportunities - in collaboration with key global stakeholders - will help close these gaps. Therefore, the UNEP and the UNEP-led Cool Coalition's 2022-2023 workplan and strategy, adopted in January 2022, included the development of a '*Global Cooling Stocktake Report*' (herein after called 'the Report') as a joint effort under UNEP coordination. This was elevated by UNEP to be a Spotlight Report.

Shining a UNEP spotlight on cooling through the Report is also an opportunity to help countries and industry jointly deliver on the Kigali Amendment to the Montreal Protocol and the Paris Agreement. The Report will

² Cooling refers to any human activity, design or technology that dissipates or reduces temperatures and contributes to achieving: (i) reasonable thermal comfort for people, or (ii) preservation of products and produce (medicines, food, etc.), and (iii) effective and efficient processes (e.g., data centres, industrial or agricultural production and mining). *Cooling Emissions and Policy Synthesis Report*. 2020 IEA and UNEP.

³ *Optimization, monitoring, and maintenance of cooling technology* 2018 Kigali Cooling Efficiency Programme. <https://k-cep.org/wp-content/uploads/2018/03/Optimization-Monitoring-Maintenance-of-Cooling-Technology-v2-subhead....pdf> ; Clean Cooling Collaborative 2022 Website <https://www.cleancoolingcollaborative.org/the-challenge/>

bring attention to cooling market, technology access and policy trends across all countries and evaluate progress on the path to net-zero cooling - highlighting the urgency and opportunity to act.

The Report is prepared as a collective output of the UNEP-led Cool Coalition and the report recommendations for action will be endorsed by the Coalition's members, including the World Bank Group (WBG), Green Climate Fund (GCF), International Energy Agency (IEA), International Renewable Energy Agency (IRENA), Ozone Secretariat, UNDP, 28 governments, 13 local governments, 30 private sector entities, 5 academic institutions, 33 civil society organizations and 7 UN agencies (full member list is available [here](#)). This spotlight report will thereby create a platform for these key stakeholders from government, finance, industry, NGOs, and IGOs to agree to, and collaborate on, cooling policy and investment priorities, create financing platforms, support cooling policy development, and integrate cooling in the next cycle of the NDCs.

Scope

The Global Cooling Stocktake Report answers the following critical questions:

- What is the policy landscape for sustainable cooling actions around the world?
- What is the current total greenhouse gas emissions impact of national cooling policy actions across all countries?
- What are the fastest and most effective means of achieving a future of near-zero emission cooling while providing access to cooling for all?

This Report relies on predictive modelling and on an extensive literature review and analysis to provide a comprehensive review of cooling applications in both stationary settings (such as buildings) and mobile settings. It specifically explores space cooling and cold chains in the residential, commercial, industrial, agricultural and transport sectors. Space cooling refers to thermal comfort applications in all types of buildings and in vehicles. The cold chain refers to the processing and storage technologies responsible for keeping food, drinks, pharmaceuticals, and other products at controlled temperatures.

The Report considers a range of actions necessary to achieve near-zero greenhouse gas emissions from cooling (see section 2 for modelling results). These include the use of passive cooling strategies, which deliver thermal comfort with no or low energy consumption; improvements in energy efficiency; the phase-down of refrigerants that have high global warming potential; the transition to electric vehicles; and the decarbonization of the electricity grid. Together, these actions are aligned with the holistic and cross-sectoral approach known as "avoid-shift-improve-protect" to meet the cooling needs of both industrialized and developing countries through urban form, better building design, energy efficiency, renewable energy, and thermal storage while phasing down the use of refrigerants.

This Report also provides a global status check and overview of implemented country actions on sustainable cooling. It has modelled pathways to get to near-zero greenhouse gas emissions in key cooling sectors and provides a call to action for countries to pursue the policies and strategies that have the greatest impact in reducing cooling-related emissions. The report highlights a stocktake of global cooling policies as well as modelling results for global cooling, examining the emission mitigation potential and policy actions in space cooling and cold chains for the residential and non-residential sectors.

The structure of the Report is as follows.

This introductory chapter lays out the rationale, aims and scope of the report, including a brief overview of the cooling applications and technologies covered.

Chapter 2 discusses different modelling scenarios and their impact on future emissions from cooling, with pathways to arrive at near-zero emission cooling.

Chapter 3 delivers analysis of a comprehensive policy survey of national-level cooling actions and trends for all countries of the world.

Chapter 4 provides more detail on the space cooling sector and outlines required policy actions.

Chapter 5 provides more detail on the cold chain sector and outlines required policy actions.

Chapter 6 discusses progress in the transition to refrigerants with low global warming potential, as well as needed next steps.

Chapter 7 identifies financing priorities on the path towards achieving near-zero emissions from cooling. Chapter 8 provides a summary of the report's conclusions and next steps.

Annex 5: Cool Coalition: History and Way Forward

Since its founding, the UNEP-led Cool Coalition has grown in membership and impact. The Coalition currently has 130 members who are collaborating on science and policy development, knowledge exchange, advocacy and joint action directed at governments and industry. Through one year of consultations guided by an ad-hoc committee, the Coalition members adopted a [theory of change](#) in 2020 and a formal [governance structure](#) in 2021. The governance comprises an executive committee and steering committee - which include members from countries, industry, finance, academia, civil society, and international organizations. A technical committee and nine thematic [working groups](#) led by members drive delivery of the workplan. Examples of achievements can be found at <https://coolcoalition.org/>

Looking ahead, the Cool Coalition members see three opportunities to scale impact.

1. Monitoring commitments to the Global Cooling Pledge

*The UAE recognize the need to track progress on commitments made under the Cooling Pledge with support from the Cool Coalition. Tracking will be done through a ministerial report to subsequent COPs and the UNEP *Global Cooling Stocktake: Keeping Cool in an Increasing Hot World*. The latter will require deepening the data collection and modelling infrastructure created for the UNEP Cooling Stocktake and will be done with International Energy Agency.*

2. Supporting implementation of commitments to the Global Cooling Pledge and recommendations on cooling in the Global Climate Stocktake and the G20 communique

The Cool Coalition brings together the broad interests of the cooling community and can develop implementation tools and resources that are credible, authoritative, and give confidence to policymakers and regulators, thereby aiding countries and sub-national signatories to implement the Global Cooling Pledge. As an example, the [National Cooling Action Plan methodology developed](#) by the Coalition has been applied in 10 countries and is being translated to French and Arabic with plans to apply it in 17 more countries. The Coalition will work with the UNEP's Environmental Governance team and Law division to transform policy action into legislative and regulatory change.

The Cool Coalition acts as a catalyst for early-stage 'proof-of-concept' activities in under-addressed and high-impact areas, the results of which are used to inform policy and/or are mainstreamed into Member programs including UN Country Teams for scale up. An example is the [Cool Coalition's Nature for Cool Cities Challenge](#) which will demonstrate impacts, different applications, and financing for NbS for cooling which would be scaled up through UNCT's as well as partners such as SEforALL, WWF etc. Another example is the [Coalition's lighthouse projects in Asia](#) which will showcase how to implement and finance passive cooling, create guidelines to integrate passive cooling into building codes, and foster collaboration with real-estate developers, UNCT's, and GlobalABC for scale up.

The Coalition and COP28 team have worked with India's G20 Presidency to include cooling action in the G20 communique, with emphasis on demand side measures. The G20 Energy Transition Working Group Outcome Document calls for an accelerated implementation of various energy efficiency and energy savings policies and measures such as adoption of super-efficient appliances and optimizing demand for cooling and refers to the G20 Presidency's Lifestyles for the Environment Initiative (LiFE). The Cool Coalition advocacy and outreach activities including consumer information campaigns, awards and trainings and its Member's programmes on labels and standards, green building certificates and the equivalent will be key to support the G20 outcomes. Coalition members like Mission Innovation, RMI and Clinton Health Foundation, Climate works, and India's Bureau of Energy Efficiency are well placed to promote sustainable procurement programmes (e.g. buyers' clubs) to create demand for and bring to market super-efficient air conditioners that are five times more climate-friendly.

3. Unlocking Cooling Finance

The UAE has as part of its COP28 Presidency requested the finance community to support Global Cooling Pledge signatories. The Cool Coalition intends to aid this effort. The IFC is keen to support cooling action at COP28. They are leading the finance chapter of Global Cooling Stocktake and will co-produce a knowledge product on private finance for cooling.

At the 92nd meeting of the Multilateral Fund ExCom, the MLF Secretariat was asked to determine on how it might fund energy efficiency projects while phasing down HFCs and provide end user incentives that encourage demand side measures. Cool Coalition and partners such as IFC hope to collaborate with the MLF on financing for cooling and have had some preliminary discussions on approaches.

The Cool Coalition has a [Cooling Finance Working Group](#) comprised of Multilateral Development Banks, chaired by the World Bank, that can help countries implement their commitments to the Global Cooling Pledge. These activities would benefit from greater collaboration with UNEP-FI. Opportunities also exist with France's new Climate and Development hub, Banque de France's Climate Change Centre (CCC), and its Network for Greening the Financial System (NGFS).

ⁱ Minimum Energy Performance Standards

ⁱⁱ United for Efficiency

ⁱⁱⁱ Super-Efficient Equipment and Appliance Deployment

^{iv} for new buildings and for existing buildings undergoing rehabilitation, as appropriate.

^v For those countries with jurisdiction of national building codes.

^{vi} as far as individual signatories of this pledge will prepare an NDC and not operate under an umbrella NDC.