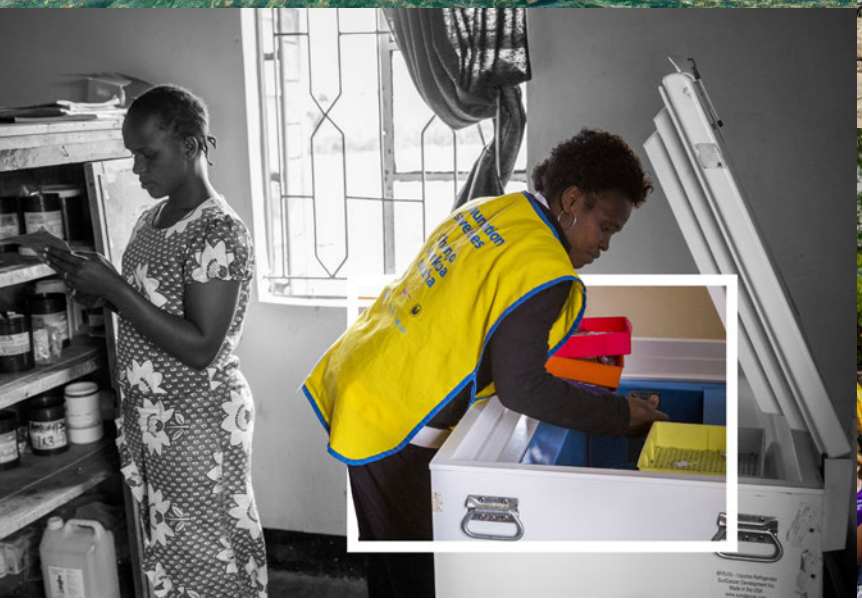


UN SECRETARY GENERAL SUMMIT:

Cool Coalition

CIVIL SOCIETY ACTION ON EFFICIENT, CLIMATE-FRIENDLY COOLING

This guide outlines the opportunity for civil society actors to join a "100 actors" list that announce commitments to advance efficient, climate-friendly cooling at the UN Climate Action Summit in September 2019 and showcase progress thereafter.

1. INTRODUCTION

Cooling is central to our nutrition, health, prosperity, and the environment. It can be provided passively (e.g. through cool building design) or actively (e.g. via air conditioning), and a combination of both . Applications range from space cooling for buildings and vehicles and cooling of industrial processes to cold chains for food and medicines. Affordable, efficient, climate-friendly cooling for all underpins all Sustainable Development Goals (SDGs) and represents an opportunity to avoid substantial greenhouse gas emissions[1].

However, cooling can be highly polluting due to the combination of direct emissions of high global warming potential (GWP) refrigerants and indirect emissions from the electricity used to run appliances such as air conditioners and refrigerators. Mobile and off-grid cooling currently primarily runs off diesel. Existing emissions from cooling need to be cut urgently and booming demand for cooling met more sustainably, complementing the Kigali Amendment to the Montreal Protocol that sets a timeline for the phase-down of HFC refrigerants. The Cool Coalition has come together to accelerate, efficient, climate-friendly cooling through a unified effort of governments, businesses, industry and civil society. It takes a cross-sectoral approach to cooling, including behavioural change, building design, energy efficiency, renewables, and thermal energy storage.

Ensuring cooling needs are met affordably, efficiently and cleanly, including for the 1.1 billion people who lack access to basic energy services, is a big opportunity to cut GHG emissions while strengthening resilience to a warming world. It also serves other strategic priorities for human well-being, including better health, cleaner air and enhanced food and energy security. Yet, the needle on affordable, efficient and climate-friendly cooling for all is moving slowly:

- Historically it has been a blind spot in the low-carbon transition.
- In most countries, the regulatory framework that would allow the widespread deployment of sustainable cooling solutions is not in place; neither are the market signals that would drive the development of dramatically more sustainable solutions.
- The sector has responded to the regulatory framework and market signals that do exist resulting in decades of incremental innovation and cost optimization.
- There is a lack of awareness about to the cooling challenge in many public spheres.

Civil society often articulates ambitious and hopeful visions for better societies, while simultaneously acting as the major watchdog of the public realm. Civil society should be held to high standards of transparency, accountability and inclusivity, and has a duty to hold governments, businesses and other stakeholders accountable for driving accelerated progress on the Sustainable Development Goals. This guide is one in a series that is also being disseminated to national and local governments, businesses, as well as investors to help elevate affordable, efficient and climate-friendly cooling as an inclusive, impactful, profitable opportunity for the UN Secretary General (UNSG) Summit in September 2019[2]. It:

- sets out the case for civil society action;
- introduces a framework for civil society action;
- outlines the types of actions that can be taken;
- highlights case studies of civil society cooling action; and
- recommends next steps, resources, and contacts.

2. THE CASE FOR CIVIL SOCIETY ACTION

What is civil society?

"Civil society" is a widely used term with no universally agreed definition. Here, "civil society" refers to a wide array of organizations including community groups, non-governmental organizations (NGOs), labour unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, foundations, and individuals (including youth).

Access to cooling is a vital human need…

As the planet warms and the average standard of living for people around the world increases, demand for cooling services - whether it be from space cooling for buildings, cold chains, mobility and industry - is set to soar. Access to affordable, efficient and climate-friendly cooling can contribute to meeting every Sustainable Development Goal (see Annex). For example:

- Cold chains increase incomes for fishermen and farmers through improved pricing for produce and reduced food loss, which supports jobs in the agricultural supply chain and enhances food security (SDG1, SDG2).
- Access to refrigeration and a robust medical cold chain reduces vaccine and medicine spoilage, helping to ensure healthy lives and promote well-being (SDG3).
- Thermal comfort during heat waves supports decent work and improves employee productivity, contributing to economic growth (SDG8).
- Affordable, efficient and climate-friendly cooling, cool urban planning and passive design for buildings and transport reduce energy demand and urban heat island effects to support sustainable cities and communities (SDG11).

Today's unmet cooling needs:

- adversely affect at least 1.1 billion people's lives[3];
- contributes significantly to the loss of 30-50% of food in developing countries along the distribution chain, including one in every four fish caught, in a world in which 815 million people go hungry; and
- lead to the loss of 25% of liquid vaccines each year, in a world in which 1.5 million people die of vaccine preventable diseases on an annual basis.[4]

… but also a major threat to our climate…

While the expansion of the cooling sector presents a great opportunity for access to cooling and improvement of human livelihoods, it also poses a major threat to our climate and our ability to limit global temperature rise to 1.5°C. In a business-as-usual scenario, the growth of the air conditioning in the residential sector alone could account for 0.5°C warming by the end of the century[5].

Current, conventional cooling technologies, such as air-conditioning and refrigeration, rely primarily on refrigerants – fluorinated (F) gases such as hydrofluorocarbons (HFCs) – that can be up to 4,000 times more warming than carbon dioxide in the atmosphere. Left unchecked, HFCs alone could account for nearly 20% of climate pollution by 2050[6].

But refrigerants are not the only aspect of cooling which threatens our climate: 80% of the global climate impact of cooling comes from the electricity that cooling appliances use[7]. In 2017 the amount of additional residential air conditioning load connected to the world's power grids (estimated at 100GW) exceeded the record amount of solar generation added that year (94GW)[8]. In the future, if cooling needs were universally met, global energy demand from cooling could increase five-fold by 2050[9].

Action on promoting alternative cooling solutions, energy efficiency and managing energy demand for cooling is therefore critical in the fight against climate change. Such measures could amount to more than doubling the climate benefits of the HFC phase-down under the Kigali Amendment.

… and a blind spot for climate policy.

With populations all around the world being increasingly affected by extreme heat waves, the paradox of cooling as a driver of global warming is increasingly taking centre stage in public debates. The Kigali Amendment to the Montreal Protocol provides a good opportunity to engage policy-makers on this issue and to accelerate change. Adopted in 2016 and in force since January 2019, the Amendment aims to progressively phase-down the use of HFCs by about 85% by 2045 while exploring opportunities to improve energy efficiency in the cooling sector.

Yet, the road to action is long:

- National energy strategies have so far focused on greening electricity and e-mobility; sustainable cooling has drawn comparatively less attention.
- In many developing countries, only a fraction of the food consumed passes through a cold-chain at some point on route from the point of production to the table.
- Many governments have yet to ratify the Kigali Amendment, and the first cuts in HFC use in developing countries do not occur until 2024.
- Most cooling equipment purchased today is far below the most efficient technologies available on the market.
- Some cooling technologies, notably traditional air conditioners, have evolved incrementally since their development over a hundred years ago due to the lack of market signals for demand for dramatically more energy efficient cooling.
- In some countries, excessive cooling behaviours are deeply ingrained and hard to shift.

The need for civil society mobilisation

Civil society actors have a crucial role to play by setting out a positive vision, mobilising and accelerating change by governments, businesses and citizens in order to ensure that affordable, efficient and climate-friendly cooling for all is achieved without jeopardising our own survival and that of the habitat in which we live.

3. FRAMEWORK FOR CIVIL SOCIETY ACTION

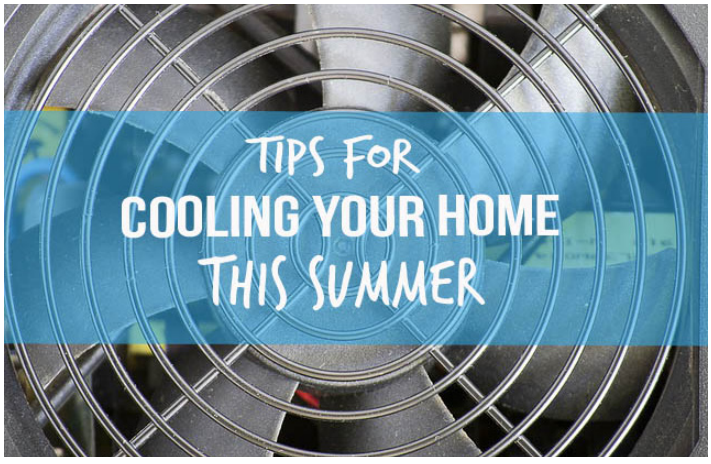
The Cool Coalition takes an inclusive view of civil society action to promote affordable, efficient and climate-friendly cooling for all. To help elevate cooling as an inclusive, impactful and urgent opportunity at the UNSG Summit, the Coalition welcomes ambitious action that:

- reduces demand for cooling by behaviour change and smart design;
- harnesses waste, free and currently untapped resources for meeting cooling needs;
- is transformational for mitigating greenhouse gas (GHG) emissions and/or adapting to climate change, in terms of novelty or scale;
- brings sustainable development co-benefits and access to cooling for all who need it;
- is replicable and can be scaled up;
- is measurable, especially in terms of GHG and particularly carbon pollution reduction , and deliverable in 3 – 5 years; and
- is an innovative technology or approach and visibly inspiring for others looking to take action.

The following section presents a framework through which civil society actors can contribute to the efficient and climate-friendly cooling agenda. Five categories of action are listed:

1. **Research**
2. **Awareness-raising**
3. **Advocacy**
4. **Stimulating innovation and demonstrating**
5. **Leading by example.**

Civil society groups and organisations can of course pursue actions across several of these categories, with their scope for action being dependent on organisational history, experience, and expertise, but also on national contexts and resources.



4. EXAMPLES OF ACTION

We encourage civil society actors to commit to ambitious action on efficient, climate-friendly cooling for all and to raise awareness of the need for action by others, including governments, businesses, investors, and local authorities – not only domestically but also in collaboration with regional and international partners.

The examples set out in the table below illustrate some of the actions that civil society actors can take. Other actions may be appropriate and better suited to individual groups' needs and contexts. Where additional solutions that meet the scale of the challenge and innovative approaches to civil society coordination and collaboration are identified, we encourage civil society actors to advocate them, and to contact the Cool Coalition for partnership opportunities.

We encourage civil society actors, to the extent practicable, to establish measurable goals for these actions and to monitor progress against them.

Category	Example action
Research	• **Develop and share evidence on:** - stakeholders, their roles, and the economic and political opportunities, challenges they face in moving towards efficient, climate-friendly cooling for all; - the crucial need for cooling to meet the SDGs in a warming world; - the economical and sociological risks and impacts of a lack of access to cooling in terms of, for example, heat stress, food scarcity, climate refugees; - harnessing waste, free and currently untapped resources to meet cooling needs; - technological and behavioural innovative alternatives to meet cooling needs; - mechanisms to remove barriers to widespread uptake of sustainable cooling solutions; - present and future cooling needs; and - country-specific analyses of how cooling plans can be integrated in nationally-determined contributions (NDCs) to the Paris Agreement. • **Run field trials of innovative cooling technologies and processes** and assess their potential to meet the SDGs and Paris Agreement goals. • Help identify **and demonstrate innovative cooling services and funding models** which help support the development of sustainable cold-chains in countries where these are lacking.
Awareness-raising	• Use the **convening power** of civil society to bring together all government, business and civil society stakeholders in cooling to **strengthen dialogue**, establish common interests and identify avenues to collectively accelerate progress towards affordable, efficient and climate-friendly cooling for all. • **Input into the development of government-led national cooling action plans and campaigns** to educate people on the use of cooling (for instance to avoid over-cooling and to highlight the importance of maintenance) as well as the imperative of developing robust clean cold chains to meet multiple SDGs . • In countries where no such government-led campaigns exist, **develop a campaign to raise awareness** of the global cooling challenge, identifying solutions, tools and processes for various actors to implement sustainable cooling solutions.
Advocacy	**National governments** • **Engage in policy discussions** aimed at designing cooling policies to ensure that these are sufficiently ambitious to live up to the cooling challenge, particularly by advocating for the development and implementation of **National Cooling Action Plans** – to put the above on a long-term footing – that can feed into Nationally-Determined Contributions and elevate cooling for all as a strategic development, infrastructure and security priority. • **Develop campaigns** and carry out policy advocacy for national governments to: - better understand the need for cooling for all to meet the SDGs and create resilient societies in a warming world; - ratify, implement and move beyond basic compliance with the Kigali Amendment to the Montreal Protocol; - introduce, raise, monitor and enforce standards (Minimum Energy Performance Standards for appliances and codes for buildings) as well as transparency labels, to help minimise energy demand for cooling; - harness free and waste resources to produce cooling, including through urban and rural thermal networks; - drive demand by introducing fiscal incentives, financial mechanisms and consumer; information programs to transform the market for efficient, climate-friendly cooling, including in cold-chains; - lead by example, in terms of governments procuring building projects and cooling technologies on the basis of sustainability and lowest life-cycle cost: and - build adequate skilled capacity in-country to support design, installation and maintenance of energy efficient cooling equipment. **Businesses** • Encourage all business actors to (i) rapidly phase down the production, consumption and purchase of high GWP refrigerants, and (ii) offer, purchase and promote refrigerants and cooling products that are consistent with the United for Efficiency Model Regulations for Air Conditioners and/ or Refrigerating Appliances. • Encourage cooling equipment manufacturers to (i) offer innovative business and finance models, (ii) support innovation for efficient, climate-friendly cooling technologies/solutions and (iii) release a GWP reduction plan for all products that utilize refrigerant gases or foam blowing agents. • Urge project developers to (i) commit to co-finance and support market preparation studies and trainings to cities/proponents on climate-friendly district cooling, and (ii) encourage their clients and partners to reduce cooling demand in project designs through systems thinking and improved building envelopes. • Encourage installers and maintenance operators to (i) provide training on efficient, climate-friendly cooling for installers and maintenance personnel, (ii) support the "refrigerant driving license"10 to ensure the sound and safe management of refrigerants, and (iii) support mechanisms (e.g. standards and labels, monitoring and incentive mechanisms) which encourage customers to purchase energy efficient products and avoid or ban importing cheap equipment with poor efficiency. • Encourage business consumers of cooling to (i) regularly service and maintain their cooling equipment, (ii) pilot innovative efficient, climate-friendly cooling solutions, and (iii) collaborate with suppliers to develop efficient, climate-friendly cold chains. • Work with businesses to develop effective knowledge transfer systems to capacity-build in countries in which new business operating models, cold-chain management systems and training and skills development are needed. **Cities** • Work with cities to : - set targets within a long-term energy and cooling strategy relying on passive and active cooling measures and targets; - undertake a city energy mapping exercise to better understand opportunities for district cooling and non-conventional or low-carbon sources of cooling; - implement building and zoning policy, codes and standards for clean and efficient cooling; - identify fiscal incentives and financing for clean and efficient cooling; and - develop demonstration cooling projects. **Other actors** • Encourage the financial sector to shift investments to projects focused on affordable, efficient and climate-friendly cooling solutions, including in cold chains. • Urge other civil society actors to work on efficient and clean cooling. • **Join forces** with a coalition of actors able to elevate policy messages at the international level, such as the UN Cool Coalition, the Green Cooling Initiative, or - for EU actors - the Cool Products for a Cool Planet.
Stimulating innovation and demonstrating	• **Develop projects to incentivise businesses** to strive towards greater innovation in the cooling sector, with a focus on minimising the environmental impact of cooling solutions. • **Showcase and demonstrate** alternative cooling solutions and business models in order to make a concrete intervention in markets. • Work with businesses to demonstrate **zero-carbon cold-chain logistics** with no emission of pollutants.
Leading by example	• **Commit** to: - raise awareness and shift behaviours on cooling within internal operations; - carry out a building audit to identify how it can be retrofitted minimise the need for active cooling; - avoid the need for active cooling using passive cooling design, techniques and solutions; and - only procure and use cooling equipment and technologies that are highly efficient and use low- or zero-GWP refrigerants, and regularly service and maintain cooling equipment to ensure design efficiencies are continuously achieved.

5. CASE STUDIES OF COOLING ACTION

5.1 Research

- In 2018, Sustainable Energy For All published "Chilling Prospects: Providing Sustainable Cooling for All", one of the first reports to quantify the cooling access gap globally and highlight the inherent risks of inadequate access to cooling as well as the challenge of providing cooling for all in a sustainable manner.
- The University of Birmingham and Heriot Watt University are developing a methodology to define cooling access gaps. They are contributing to overcoming the data limitations that prevent governments and communities from developing plans that would ensure that the cooling needs of their population - including those that are the most vulnerable - are sustainably met.
- In June 2019, CLASP released four reports assessing the current air conditioner markets in Kenya, the Philippines, Thailand, and Vietnam and the potential impacts of different MEPS and energy labeling scenarios.
- Via its CryoHub project, London Southbank University and European partners investigate the potential of large-scale liquid air energy storage at refrigerated warehouses and food factories to use the stored energy for providing both cooling on site and electrical energy generation during peak demand periods.

5.2 Raise awareness

- **Cool Products for a Cool Planet**, a coalition of European NGOs, is:
  - inputting into policy discussions to ensure that the ecodesign and energy labelling in Europe are sufficiently ambitious to effectively tackle the environmental crisis;
  - stress-testing the impact of these policies after implementation;
  - and running campaigns to raise the awareness of Europeans on this issue.
- **Topten**, currently present in 19 countries around the globe, is a consumer-oriented online search tool which ranks various categories of products - including some cooling appliances such as fridges and air conditioners - according to their energy efficiency, impact on the environment, health and quality.
- **CLASP and China's National Institute of Standardization** collaborated to develop a QR code based energy label and a mobile application to help consumers get access to a variety of information about the products and appliances. The roll out of the QR code was accompanied by consumer awareness campaigns in 30 cities.
- The Climate Group's **EP100 Cooling Challenge** in partnership with the Alliance to Save Energy calls on the private sector to optimize the contribution of clean efficient cooling to energy productivity targets. As the demand for cooling continues to rise, companies must play a leading role in avoiding cooling related emissions.

coolproducts for a cool planet

5.3 Advocate

- The Environmental Investigation Agency (EIA) is:
  - engaging the Multilateral Fund11 to encourage guidelines that will create a sustainable financial framework that helps developing countries transition to energy-efficient HFC-free technologies;
  - working to remove barriers to the adoption of efficient and sustainable cooling technologies;
  - investigating and exposing the illegal trade in HFCs and other refrigerant gases, and advocating stronger regional and international compliance.
  - raising awareness of the availability of efficient, HFC-free cooling technologies through engagement with supermarkets and the 'Cool Technologies' database.

5.4 Stimulate innovation and demonstrate

- The Rocky Mountain Institute and its partners are running a Global Cooling Prize designed to incentivize the development of a residential cooling solution that will have at least five times less climate impact than today's standard AC units. This technology could prevent up to 75 gigatons of CO2-equivalent emissions by 2050, and put the world on a pathway to mitigate up to 0.5°C of global warming by 2100, all while enhancing living standards for people in developing countries.
- The Global Cool Cities Alliance is one of the partners spearheading Million Cool Roofs Challenge, a global competition to rapidly scale up the deployment of highly solar-reflective "cool" roofs in developing countries suffering heat stress and lacking widespread access to cooling services.
- Ashden is running a Cooling By Nature Award as part of the 2019 Ashden Awards. This award will shed light on the passive cooling solutions, such as green infrastructure and shading, able to reduce the need for active cooling solutions, notably in the urban outdoors.
- The University of Birmingham and Heriot Watt University are working with India's National Centre for Cold-chain Development (NCCD) and Shakti Foundation to explore how integrated 'Community Cooling Hubs' can help farming communities in India reduce food waste, increase their income and meet rural communities' cooling needs in an affordable and sustainable way. These Hubs aim to integrate food cold chains with other cold-dependent services such as community health facilities, social facilities such as creches and even emergency services.

5.5 Lead by example

The World Wide Fund for Nature - via its initiative Cool & Solar - is working with partners to accelerate the deployment of rooftop solar PV and efficient and clean cooling solutions in tropical regions. It does so by:

1. Deploying these solutions in WWF offices around the world, transforming them into best practice demonstration sites
2. Supporting partners to implement similar solutions in their own building stock
3. Carrying out policy advocacy work supported by these on-the-ground projects to mainstream these energy solutions for buildings into national policy.

6. NEXT STEPS

6.1 The Cool Coalition Network

The Cool Coalition addresses a major blind spot in the energy transition by creating a unified effort of governments, businesses and civil society on efficient, clean cooling. It takes a cross-sectoral approach to cooling, including building design, energy efficiency, renewables, and energy storage.

The Cool Coalition combines the global resources of its co-leads and champions– including UN Environment, World Bank Group, CCAC, C40, Chile, Rwanda, IEA, K-CEP, SEforALL, Danfoss, ENGIE and Electrolux – to support governments to develop comprehensive and cross-sectoral national cooling action plans, for inclusion in Nationally Determined Contributions (NDC), while setting ambitious targets, tracking results and monitoring impacts in a manner that complements the implementation of the Kigali Amendment.

The Cool Coalition's approach is to:

- **AVOID the need for active cooling:** urban form, building design, nature based solutions from green public space to green roofs and walls;
- **SHIFT cooling's modality:** district cooling, renewables, solar powered cold chains;
- **IMPROVE conventional cooling:** air conditioning and refrigeration efficiency, fans, demand response;
- **PROTECT vulnerable people** from the effects of heat extremes and broken medical and agricultural cold chains.
- **LEVERAGE** all possible cooperation between different actors active in cooling.

The Cool Coalition is a platform that brings together:

- **Governments,** including through their engagement with global initiatives: the Climate and Clean Air Coalition, including France and Japan as co-leads of its Efficient Cooling Initiative; the signatories of the Biarritz Pledge; the Global Alliance for Buildings and Construction, the International Solar Alliance; and countries such as Chile, Rwanda, and the Dominican Republic that have committed to the Cool Coalition
- **Businesses:** Arcelik, Carrier, Danfoss, ENGIE, Schneider Electric, Electrolux, Empower, the International District Energy Association, the International Copper Association, Sanhua, Synergi, Tabreed, EP100
- **International Organizations:** International Renewable Energy Agency, Sustainable Energy for All Initiative, UN Environment, World Bank Group
- **Local governments and civil society** (including NGOs, academic institutions): the Global Cool Cities Alliance, ASHRAE, Basel Agency for Sustainable Energy, Carbon Trust, C40, Care Without Harm, Energy Foundation China, Environmental Investigation Agency, EP100, K-CEP, Natural Resources Defense Council, REN21, Rocky Mountain Institute, Shakti Sustainable Energy Foundation, TERI, University of Birmingham, World Wildlife Fund, CLASP, ECREEE, RCREEE.

6.2 How to join the Cool Coalition

The Cool Coalition already has more than 20 leading organisations driving change in the cooling sector. Please reach out to unep-coolcoalition@un.org and jcalder@wwf.fr to find out more about how you can engage including on how to join, actions, and the UN Secretary General Summit events.

6.3 Commit to cooling action

Civil society is a critical actor in addressing the cooling challenge. Adoption of the actions and case studies outlined above can catalyse much needed progress and position civil society actors as climate leaders.

An endorsement form to join the cool coalition and commit to action for the UNSG's Climate Action Summit is enclosed at the end of the document. Please complete and send back to unep-coolcoalition@un.org and jcalder@wwf.fr. Join us and showcase your leadership at the Climate Summit!

A range of additional resources is set out below to help cities to find out more about the importance of cooling and how to take action.

ANNEX 1: HOW COOLING IS LINKED TO THE SUSTAINABLE DEVELOPMENT GOALS

SUSTAINABLE DEVELOPMENT GOAL	EXAMPLES OF IMPACT OF COOLING
1. No Poverty	Cold chains enhance incomes for fishermen and farmers through improved pricing for produce and reduced food waste. Cooling has significant new employment demand from direct jobs around manufacture and maintenance to meet the massive increase in appliances to indirect jobs such as in food processing and preservation.
2. Zero Hunger	It is estimated that 1.3 bn tonnes of food is lost or wasted each year; approx 1/3 of of total food produced for human consumption. Refrigeration enhances food security through extending shelf-life of produce so that less is wasted. In addition, reduced waste increases incomes in farming and fishing communities and leads to more stable food prices.
3. Good Health and Well being	Access to refrigeration and a robust medical cold chain leads to reduced vaccine and medicine spoilage. Access to refrigeration in the food cold chain reduces food waste and food poisoning. Air conditioning offers protection from temperature extremes.
4. Quality Education	Ability to work and thermal comfort are inter-related. Reducing the risk of malnutrition also positively impacts academic performance.
5. Gender Equality	Women make up almost half the agricultural workforce in Africa, and far more in some countries – around 70% in Kenya, Nigeria and Rwanda. If combined with policies to improve women farmers' access to finance and resources, clean cold chains could benefit women preferentially and help narrow the gender gap.
6. Clean Water and Sanitation	Prevented food spoilage saves substantial amounts of water.
7. Affordable and Clean Energy	Refrigeration and air conditioning are responsible for over 17% of the worldwide electricity consumption. Global air conditioning energy demand, driven overwhelmingly by cities in developing countries such as China, India, Indonesia, and Brazil, is forecast to rise 33-fold by 2100 to more than 10,000 TWh, roughly half the total electricity generated worldwide in 2010.
8. Decent Work and Economic Growth	Agriculture and fishing are very significant employers. Enhancing the efficiency of these industries by reducing waste, as well as increasing market connectivity will improve profitability. As an example, in India, the GOI has identified cold chains as a key pillar of doubling farmers' incomes. Productivity and thermal comfort are interrelated and by 2050, heat-related work-hour losses in some countries are projected to be as high as 12% — worth billions of US dollars — in the worst-effected regions.
9. Industry Innovation and Infrastructure	All forms of cooling will require substantial infrastructure investments to be delivered and considerable innovation is required to enhance efficiencies. With the industry projected to double in size, there is an opportunity to create new manufacturing opportunities including in-country.
10 Reduce Inequalities	Clean cold technologies reduce inequality both within and between countries. Looking at income inequality, clean cold chains reduce poverty by lowering food prices and raising farmers' income. Better nutrition and thermal comfort would improve the educational outcomes of the most disadvantaged in society. In terms of gender inequality, cold chains combined with support from policy will improve access of agricultural resources to female farmers which reduces the gender gap by providing female farmers with access higher value exports.
11. Sustainable Cities and Communities	Sustainable cooling and design for buildings and transport reduce energy demand and heat island effect. Food security in cities where very little farming land is available is critically dependent on a cold chain.
12. Responsible Consumption and Production	Food and vaccine loss are reduced through proper access to refrigeration and cold chains.
13. Climate Action	Cooling uses substantial quantities of energy and causes direct emissions from refrigerant leakage.
14. Life Below Water	Wastage of marine products before reaching market increases pressure on fish stocks.
15. Life on Land	Reducing food wastage eases the main driver of deforestation and land degradation.
16. Peace and Justice	Clean cold technologies indirectly help to maintain peace by suppressing potential sources of conflict, e.g. rising food prices (Arab Spring) and urban migration due to rural poverty.
17. Partnership for Goals	In most developing countries, cooling infrastructure is currently rudimentary or non-existent. There is a brief opportunity to create partnerships through which developing countries leapfrog direct to clean cold, thereby wmaking an important contribution to every one of the Global Goals.

Source: A Cool World: Defining the Energy Conundrum of Cooling For All, University of Birmingham 2018
https://www.birmingham.ac.uk/Documents/college-eps/energy/Publications/2018-clean-cold-report.pdf

FURTHER RESOURCES

The following organizations provide information and or technical assistance for efficient, climate-friendly cooling:

- Basel Agency for Sustainable Energy's Cooling as a Service initiative: *http://energy-base.org/project/cooling-as-a-service/*
- Climate Group EP100: *https://www.theclimategroup.org/project/ep100*
- District Energy in Cities Initiative: *http://www.districtenergyinitiative.org*
- Green Cooling Initiative: *https://www.green-cooling-initiative.org*
- Heriot Watt and Birmingham Universities (2019), Clean Cooling Landscape Assessment: *https://www.clean-cooling.ac.uk/*
- IEA (2019), The Future of Cooling: *https://www.iea.org/futureofcooling/*
- Kigali Cooling Efficiency Program's Resources page: *https://www.k-cep.org/insights/resources/*
- RMI (2018), Solving the Global Cooling Challenge: *https://rmi.org/wp-content/uploads/2018/11/Global_Cooling_Challenge_Report_2018.pdf*
- SEforAll (2018), Chilling Prospects: Providing sustainable cooling for all : *https://rmi.org/wp-content/uploads/2018/11/Global_Cooling_Challenge_Report_2018.pdf*
- United for Efficiency's resources page: *https://united4efficiency.org/resources*
- University of Birmingham (2018), A Cool World: Defining the Energy Conundrum of Cooling For All, *https://www.birmingham.ac.uk/Documents/college-eps/energy/Publications/2018-clean-cold-report.pdf*

ENDNOTES

1. A Cool World: Defining the Energy Conundrum of Cooling For All, University of Birmingham 2018https://www.birmingham.ac.uk/Documents/college-eps/energy/Publications/2018-clean-cold-report.pdf
2. The guides for business and national governments are available on the Kigali Cooling Efficiency Programme's website
3. SEforAll (2018)
4. Heriot Watt and Birmingham Universities (2019)
5. See RMI (2018) for a list of assumptions in this scenario
6. KCEP (2019)
7. Heriot Watt and Birmingham Universities (2019)
8. RMI (2018)
9. Heriot Watt and Birmingham Universities (2019)
10. The global qualification program for refrigerant supply chain networks
11. the Montreal Protocol's dedicated financial instrument

UN environment WWF KIGALI COOLING EFFICIENCY PROGRAM

COMMON STATEMENT AND ENDORSEMENT FORM

By joining the Cool Coalition, we recognize that efficient and climate-friendly cooling can make a huge difference in the fight against climate change and pollution, sustainably provide essential cooling to hundreds of millions more people, and bring huge financial savings.

The Cool Coalition is a unified front to seize this opportunity, linking the Kigali Amendment to the Montreal Protocol, the Paris Agreement on Climate Change, and the Sustainable Development Goals. It is a coalition of proactive governments, businesses, and civil society organizations that aims to inspire ambition, identify solutions, and accelerate progress toward efficient and climate-friendly cooling.

The Cool Coalitions takes a cross-sectoral and holistic approach to reducing emissions from the cooling sector by looking at a broad range of solutions, ranging from urban form, building design, district cooling to nature-based solutions to highly efficient and climate-friendly cooling technologies that use low- or zero GWP refrigerants.

As members of the coalition, we commit to act boldly to get the best cooling solutions adopted at scale and within a meaningful timeframe. To that end, we will:

- Advocate: Raise awareness on efficient and climate-friendly cooling
- Collaborate: Actively participate in a community that breaks down silos and promotes cross-cutting actions for efficient and climate-friendly cooling
- Act: Help secure and/or make commitments on efficient and climate-friendly cooling

Name of the organization:	
The organization is a:	
NGO, Community group, non-governmental organization, labour union, indigenous groups charitable organization, faith-based organization, professional association, foundation, and individual (including youth)	Other:

I [Director, Head, Representative of _____] **confirm our involvement in the Cool Coalition, endorse the Cool Coalition Common Statement and hereby** agree to pursue the following action(s) to promote efficient and climate-friendly cooling: *[Include here one or more actions from the example table above and/or other actions that align with the aims of the Cool Coalition]*

Last Name:	First name:
Website:	
Email address:	Phone:

Please briefly describe the nature of your contribution to the Cool Coalition:

Signature:	Date:

Please attach your organization's logo when returning this form to *unep-coolcoalition@un.org*