Inventory of International Cooling Programmes and Initiatives
Part I: Introduction

The Climate and Clean Air Coalition (CCAC) is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society organizations, dedicated to improving air quality and protecting the climate through actions to reduce short-lived climate pollutants, such as black carbon, methane and HFCs. Accordingly, the CCAC’s Workstream on Complementing the Implementation of the Kigali Amendment (the “Kigali Workstream”) aims to contribute to the global implementation of the Montreal Protocol’s Kigali Amendment on the phase-down of HFCs in a manner that supports and complements the work of the Montreal Protocol and its Multilateral Fund, including by encouraging faster action where possible in order to enhance the climate benefits of phasing down HFCs.

A key element of the work plan of the Kigali Workstream is the preparation of an inventory of international programmes and initiatives related to the cooling sector (that is, refrigeration and air conditioning equipment and appliances where HFCs are primarily used). The purpose of this inventory is to provide to interested CCAC Partners and other stakeholders an overview of the evolving landscape of programmes and initiatives related to the cooling sector, particularly those that aim to reduce emissions of high-global warming potential (GWP) refrigerants, such as HFCs, optimise the energy efficiency of technologies in the sector, and/or improve access to cooling. It is expected that the inventory will help interested stakeholders gain a better understanding of all the main international dedicated programmes in the cooling sector, so that international organizations working in the cooling space are able to:

- Design their objectives and activities in a manner that is complementary and avoids overlap with other programmes/initiatives; and
- Consider opportunities for synergies and collaboration with organizations that may share a similar objective or focus.

For the CCAC in particular, the inventory will be useful for the Kigali Workstream and the newly established Cooling Hub to determine where the CCAC could bring significant added value to global efforts to reduce the use and emissions of HFCs and enhance energy efficiency in the cooling sector.

This inventory seeks to include all international cooling programmes and initiatives, meaning all coordinated efforts related to the refrigeration, air-conditioning and heat pump (RACHP) sector, including passive and nature-based cooling solutions that have environmental objectives and operate in more than one country. Many activities accounted for in the inventory are being implemented globally, bilaterally, multilaterally or regionally, by various organizations through different coalitions, projects, programmes and initiatives. This information tool is intended to promote exchange, transparency and efficiency among those engaged in the cooling sector, with a view to avoiding duplication and identifying potential gaps for future work in this area. Initiatives that are primarily focused on one country were not included. While aspiring to be comprehensive, it is possible that certain international programmes and initiatives were missed or not included because there was insufficient information on their activities. However, additional initiatives could be included in subsequent versions of the inventory if there is sufficient interest from stakeholders to have this inventory updated on a regular basis.

In order to populate the inventory, a questionnaire was sent to organizations known to the CCAC to be working in the cooling space, in order to collect information on their programmes and initiatives. In some instances, follow-up was conducted with organizations to seek clarification or additional information. For the few organizations that did not respond to the questionnaire, the Kigali Workstream itself collected relevant information on their programmes/initiatives through a search of publicly available information.

The inventory consolidates information collected from the questionnaire and other sources into an approximately one-page summary of each selected programme and initiative, compiled in Part III of this document. It has been organized in alphabetical order under the name of each organization. Each summary includes a brief description of the objectives of the programme/initiative, its governance structure, key activities, and the level and source of funding (where applicable). Additionally, for ease of reference, Part II of this document provides a summary table listing all programmes and initiatives, including key facts about the organization, cooling objectives, sectors and geographic areas of focus, and any relevant information related to funding.
Part II: At a glance
Click on the name of the cooling programme/initiative for a closer look, including a description of its objectives, main activities, and expected or actual results, as well as information on its link to the Montreal Protocol and Kigali Amendment, the amount and type of funding, current beneficiary countries and specific targeted regions.

<table>
<thead>
<tr>
<th>Organization name</th>
<th>Cooling programme/initiative</th>
<th>Activity type(s)</th>
<th>Primary (1) and secondary (2) cooling objective(s)</th>
<th>Sector(s) addressed</th>
<th>Targeted regions</th>
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</thead>
<tbody>
<tr>
<td>Basel Agency for Sustainable Energy (BASE)</td>
<td>Your Virtual Cold-Chain Assistant</td>
<td>X</td>
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<td>The Climate and Clean Air Coalition</td>
<td>Climate and Clean Air Coalition Cooling Hub</td>
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<td>ClimateWorks Foundation</td>
<td>Clean Cooling Collaborative</td>
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<td>CLASP</td>
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<td>Environment and Climate Change Canada (ECCC)</td>
<td>ECCC Montreal Protocol Bilateral Program</td>
<td>X X X X</td>
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<tr>
<td>Environmental Investigation Agency (EIA)</td>
<td>EIA - various cooling workstreams</td>
<td>X X X X X</td>
<td>1 2 2 2 X X X X X</td>
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<td>French Facility for Global Environment</td>
<td>French Facility for Global Environment</td>
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<td>Global Food Cold Chain Council (GFCCC)</td>
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<td>Green Climate Fund Secretariat (GCF)</td>
<td>Green Climate Fund Secretariat (GCF)</td>
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<td>Global Environment Facility Secretariat (GEF)</td>
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<tr>
<td>GIZ</td>
<td>Green Cooling Initiative II</td>
<td>X X 1 2</td>
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<tr>
<td>GIZ (UNIDO and UNDP cooperating)</td>
<td>Cooling Program for Southern Africa</td>
<td>X X 1 1</td>
<td>X X X X</td>
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<td>X</td>
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<tr>
<td>GIZ (UNIDO and UNDP cooperating)</td>
<td>A Sustainable and Climate-Friendly phase out of ozone-depleting</td>
<td>X X X 1</td>
<td>2 X X X</td>
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<tr>
<td>Stakeholder</td>
<td>Description</td>
<td>Global Cold Chain Alliance</td>
<td>Global Cold Chain Alliance</td>
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<tr>
<td>Global Cold Chain Alliance/World Food Logistics Organization</td>
<td>Global Cold Chain Alliance</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Guidehouse Germany GmbH</td>
<td>Cool Up: Upscaling Sustainable Cooling</td>
<td>X</td>
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<tr>
<td>Institute for Governance &amp; Sustainable Development</td>
<td>IGAD</td>
<td>X</td>
<td>X</td>
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<tr>
<td>International Energy Agency (IEA)</td>
<td>Technology Collaboration Programme on Energy Efficient End-Use Equipment</td>
<td>X</td>
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<tr>
<td>International Energy Agency (IEA)</td>
<td>Super-Efficient Equipment and Appliance Deployment Initiative</td>
<td>X</td>
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<tr>
<td>International Finance Corporation (IFC)</td>
<td>IFCTechEmerge Sustainable Cooling Innovation</td>
<td>X</td>
<td>X</td>
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<tr>
<td>International Institute of Refrigeration (IIR)</td>
<td>International Institute of Refrigeration</td>
<td>X</td>
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<tr>
<td>Ministry of the Environment, Japan</td>
<td>Initiative on Fluorocarbons Life Cycle Management</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Multilateral Fund Secretariat (MFS)</td>
<td>Multilateral Fund for the Implementation of the Montreal Protocol</td>
<td>X</td>
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<tr>
<td>Rocky Mountain Institute (RMI)</td>
<td>Global Cooling Prize</td>
<td>X</td>
<td>X</td>
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<td>1</td>
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<tr>
<td>Sustainable Energy for All (S4ALL)</td>
<td>Cooling for All</td>
<td>X</td>
<td>X</td>
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<tr>
<td>UAE and Basel Agency for Sustainable Energy</td>
<td>ECOFRIDGES Initiative in West Africa</td>
<td>X</td>
<td>1</td>
<td>2</td>
<td>X</td>
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<tr>
<td>United Nations Development Programme (UNDP)</td>
<td>Capacity Building Programme for SIDS on the implementation of the Montreal Protocol</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>United Nations Development Programme (UNDP)</td>
<td>Climate Promise</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

Substances and hydrofluorocarbon mitigation actions for the implementation of the Kigali Amendment under the Montreal Protocol.
| Organization                                                                 | Program/Project                                                                 | X | X | X | X | X | 1 | 1 | 1 | 2 | X | X | X | X | X | X | X | X | X | X | X | X | X |
| United Nations Environment Programme (UNEP) Cool Coalition                   |                                                                                  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| United Nations Environment Programme (UNEP) Refrigerant Driving License (RDL)|                                                                                  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | X |
| United Nations Environment Programme (UNEP) OzoneAction & Global Food Cold Chain Council (GFCCC) Cold Chain Database |                                                                                  | X | X | 1 | 2 | 1 | 2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| United Nations Environment Programme (UNEP) OzoneAction & the European Partnership for Energy and the Environment (EPEE) HFC Outlook Model |                                                                                  | X | X | 1 | 2 | 2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| United Nations Environment Programme (UNEP) United for Efficiency (U4E) UNE - Cooling |                                                                                  | X | X | X | X | X | 2 | 1 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| United Nations Environment Programme (UNEP) United for Efficiency (U4E) The Africa Centre of Excellence for Sustainable Cooling and Cold Chain |                                                                                  | X | X | X | X | 2 | 1 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| United Nations Industrial Development Organization (UNIDO) Energy Efficient Lighting and Appliances Project |                                                                                  | X | X | X | X | 1 | 2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| World Bank Operationalizing Energy Efficiency and HFC Phase-down Synergies |                                                                                  | X | X | X | X | 2 | 1 | 1 | 2 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| World Bank/ESMAP Efficient, Clean Cooling program |                                                                                  | X | X | X | X | X | 1 | 1 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

Note: The table indicates the presence or absence of collaboration or engagement with the listed programs/organizations. The Xs represent different levels of engagement, with variations in intensity or scope.
### Your Virtual Cold-Chain Assistant

#### Purpose and objectives

BASE and the Swiss Federal Laboratories for Materials Science and Technology (EMPA) are working to create an open access, data-science-based mobile application, Your Virtual Cold-Chain Assistant, to enable smallholder farmers to access data and sustainable cooling facilities, with a financing solution, easy to access pre- and post-harvest expertise and market intelligence. This information is made accessible through an innovative “servitisation” business model. The objective of the programme is to enable smallholders to make decisions on cooling based on lifecycle benefits rather than upfront costs, and have access to easy-to-use information so that they can make optimal decisions on produce and farm management. This will help smallholders break the negative cycle of poverty, while improving access to sustainable cooling and food security and minimising the impact of food production on the global climate.

#### Key activities

The development of the Your Virtual Cold-Chain Assistant application is the main activity. Currently, the application is being developed for India and Nigeria. The project will use various data inputs, including weather and climate data, geographical location data, fresh-produce yields, hygrothermal cold-storage sensor data, forecasted remaining shelf life of produce and real-time market prices. This data-driven solution will provide smallholders with:

1. An optimal cold-chain facility and maintenance contract, given their resources and yield—made accessible through a servitisation business model—which can scale with the growth of their business.
2. Real-time instructions on how to control the storage of products to have the least food loss and minimal energy use.
3. Instructions guiding farmers on when to sell their products to have the highest market value and minimise waste.

The programme incentivizes the use of energy-efficient cooling through the implementation of the Cooling as a Service (CaaS) business model, a global effort launched by BASE and K-CEP (now Clean Cooling Collaborative) to scale up investments in clean and efficient cooling.  

#### Current funding

USD 1.4 million over the time-period of 2021-2023.

#### Current beneficiary countries

India, Nigeria
### Climate and Clean Air Coalition Cooling Hub

**Lead organization:** The Climate and Clean Air Coalition (CCAC)

<table>
<thead>
<tr>
<th>Purpose and objectives:</th>
<th></th>
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<tbody>
<tr>
<td>The CCAC is a voluntary global partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society committed to catalysing concrete, substantial action to improve air quality and protect the climate by reducing emissions of ‘short-lived climate pollutants’ – including methane, black carbon, and HFCs. The CCAC currently has 73 state partners and 78 non-state partners.</td>
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<tr>
<td>In 2022, the CCAC launched a new Cooling Hub which aims to maximize the environmental benefits of the HFC phasedown under the Kigali Amendment to the Montreal Protocol through promoting early and complementary actions on HFCs, supporting strategic actions in the short-term to minimize climate-related emissions throughout the life-cycle of HFC refrigerants and HFC-based cooling equipment, and reducing the energy demand associated with new and existing cooling equipment. The Cooling Hub replaces the CCAC’s previous HFC and Efficient Cooling Initiatives.</td>
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<tr>
<td>Governance</td>
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<tr>
<td>The CCAC is governed by a Working Group representing all partners that usually meets twice a year and a Board that meets monthly. A ministerial-level assembly meets at least once a year to provide strategic direction to the Coalition. A Secretariat hosted by UNEP provides administrative support for the Coalition and the individual hubs and initiatives. The CCAC Cooling Hub is a Partner-driven platform currently co-chaired by Canada and the Republic of the Maldives.</td>
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<tr>
<td>Key activities</td>
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<tr>
<td>The CCAC Cooling Hub activities and funding are guided by an engagement strategy with four goals: (1) Raise high-level global awareness of the relevance of the cooling sector to combat climate change and mobilize political support for ambitious action; (2) support full ratification of the Kigali Amendment; (3) significantly contribute to enhancing the environmental benefits of the Kigali Amendment through complementary actions to reduce HFC and energy-related emissions in the cooling sector; and (4) mobilize industry partners working in the cooling sector to provide specific commitments on how they will support and facilitate a faster phase-down of HFCs and/or enhancing energy efficiency in the cooling sector. Based on these goals, the Coalition supports national planning, capacity building and project implementation in Partner countries.</td>
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<tr>
<td>The CCAC Cooling Hub also supports action through two on-going workstreams:</td>
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<tr>
<td><strong>Kigali Workstream</strong> - led by Canada and France, seeks to support countries to comply with the 2024 HFC consumption freeze under the Montreal Protocol’s Kigali Amendment and accelerate national action on HFCs. The Workstream is currently in its first phase (2021-2022), seeking to assess the needs and potential benefits of accelerated/optimize national action on HFC by studying HFC consumption trends in Article 5 countries and identifying opportunities to avoid growth and/or achieve rapid reductions. Based on the outcomes of the first phase, the Kigali Workstream will support the development of specific activities and project concepts to help interested countries accelerate or optimize Kigali Implementation.</td>
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<tr>
<td><strong>Life-cycle Management of Fluorocarbons Workstream</strong> – supports the Initiative on Fluorocarbons Life Cycle Management led by Japan and seeks to (1) increase awareness and support at senior levels of governments with respect to policies, regulations, standards and other actions to efficiently and economically address end-of-life management of HFCs and other F-gases; and (2) identify and generate additional resources to assist developing countries in managing banks of HFCs and other F-gases.</td>
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<tr>
<td>Current funding:</td>
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<tr>
<td>The CCAC has an annual budget of $3 million to support sectoral Hub engagement strategies. A further $3 million is available to support national planning, capacity building, and project implementation based on country expressions of interest. Project funds are dispersed through two annual calls for proposals.</td>
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</tbody>
</table>

| Website: | www.ccacoalition.org |  |
| Type of organization: | International Organization |  |
| Activity type: |  |
| ✓ Capacity-building | ✓ Technical assistance | ✓ Advocacy and awareness-raising | ✓ Research & analysis | ✓ Political/High level outreach | ✓ Multi-stakeholder collaboration platform |  |
| Primary cooling objective: |  |
| ✓ Refrigerant/HFC phase-down | ✓ Refrigerant life-cycle management |  |
| Secondary cooling objective: |  |
| ✓ |  |
| Sector(s) addressed: |  |
| ✓ Domestic refrigeration | ✓ Commercial refrigeration | ✓ Industrial refrigeration | ✓ Transport (mobile) refrigeration | ✓ Domestic AC | ✓ Commercial AC | ✓ Mobile AC | ✓ Passive Cooling Technologies |  |

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### Purpose and Objectives:

The CCAC is governed by a Working Group representing all partners that usually meets twice a year and a Board that meets monthly. A ministerial-level assembly meets at least once a year to provide strategic direction to the Coalition. A Secretariat hosted by UNEP provides administrative support for the Coalition and the individual hubs and initiatives. The CCAC Cooling Hub is a Partner-driven platform currently co-chaired by Canada and the Republic of the Maldives.

### Key Activities:

The CCAC Cooling Hub activities and funding are guided by an engagement strategy with four goals:

1. **Raise high-level global awareness of the relevance of the cooling sector to combat climate change and mobilize political support for ambitious action.**
2. **Support full ratification of the Kigali Amendment.**
3. **Significantly contribute to enhancing the environmental benefits of the Kigali Amendment through complementary actions to reduce HFC and energy-related emissions in the cooling sector.**
4. **Mobilize industry partners working in the cooling sector to provide specific commitments on how they will support and facilitate a faster phase-down of HFCs and/or enhancing energy efficiency in the cooling sector.**

Based on these goals, the Coalition supports national planning, capacity building, and project implementation in Partner countries.

### Current Funding:

The CCAC has an annual budget of $3 million to support sectoral Hub engagement strategies. A further $3 million is available to support national planning, capacity building, and project implementation based on country expressions of interest. Project funds are dispersed through two annual calls for proposals.
| Current beneficiary countries: Global | Targeted regions: | All developing countries |
### Purpose and objectives
The Clean Cooling Collaborative (CCC) – formerly the Kigali Cooling Efficiency Program (K-CEP) – is a philanthropic initiative working to deliver efficient, climate-friendly cooling for all. Originally, the K-CEP Secretariat was charged with strategically programming interventions for the funds under a directive to advance appliance efficiency reforms alongside efforts to support the implementation of the new global HFC phase-down under the Kigali Amendment. In 2021, the organization refreshed its strategy and changed its name to the Clean Cooling Collaborative to reflect the revised scope of work. CCC focuses on four solution areas:

1. **Super-efficient appliances**
   High-performance air conditioning and refrigeration technologies can cut energy use by half and be powered by zero-carbon electricity.

2. **Climate-friendly refrigerants**
   Natural refrigerants and those with low global warming potential can replace chemicals that release pollutants that are thousands of times more damaging to the climate than carbon dioxide.

3. **Passive cooling**
   Urban greening, shading, solar-reflective roofs, improved building envelopes, and better urban design can provide natural cooling, reducing the need for energy-intensive mechanical cooling like air conditioning.

4. **Integrated solutions**
   Efficient, climate-friendly cooling supports other climate and development goals, including building electrification with technologies like heat pumps, which efficiently heat and cool buildings; grid decarbonization by integrating cooling into demand-side management programs to help ensure grid stability; and secure food and vaccine supply chains by creating a strong supporting cold chain network.

While the CCC is active globally, as of 2021, it focuses predominantly on regions with the greatest potential to mitigate the climate impacts of cooling: China, India, Southeast Asia, and the United States. These regions are projected to produce 75% of cooling-related emissions by 2050.

### Governance
Founded in 2017 as the K-CEP, the program is housed at ClimateWorks Foundation. The CCC’s Secretariat oversees program operations, develops the strategy, manages grants and relationships with grantees, provides technical advice, collaboratively engages funders and grantees alike, and promotes media engagement to amplify CCC’s vision.

### Key activities
During its first phase, the CCC/K-CEP contributed to the following results, among others:
- 22 national cooling efficiency policies, standards, or programs have been implemented or are being rolled out in 10 countries, with half of these exceeding international best practice levels.
- Five National Cooling Action Plans were published, and four more are slated for publication before the end of Phase I.
- With an initial $10 million investment in finance work, more than $600 million has been mobilized for efficient, climate-friendly cooling.
- 14 industrial conversion and training partnerships were completed with local manufacturers to support efforts to retrofit inefficient manufacturing lines in tandem with the Multilateral Fund for the Implementation of the Montreal Protocol (MLF).
- Successfully raised the profile of cooling as a sustainable development priority, which has become a priority theme featured at high-level political fora.
- Working with the Montreal Protocol and its implementing agencies, K-CEP trained over 400 National Energy Policymakers and Ozone Officers on the importance of pairing energy efficiency improvements alongside the HFC phasedown work, as well as coordinated co-funding and finance for cooling efficiency.
The CCC’s Results Framework tracks the different areas of the Phase I activities (2017-2021). The GHG emissions impact of some of the policy work conducted by K-CEP and its partners over these past four years is estimated (in total, without overlapping calculations) is expected to capture 4.2 gigatons of avoided CO2 emissions by 2050 once the work is fully implemented, with 2.4 Gt CO2 already secured, by 2050. In total, this represents $960 billion in cost savings over the same period.

<table>
<thead>
<tr>
<th>Current funding: Phase I (K-CEP) had over US $50 million for the period 2017-2021; Phase II (CCC) currently has US $27 million for the period 2021-2024 and fundraising is ongoing.</th>
<th>Type of funding: ✓ Grant funding ✓ In-kind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current beneficiary countries: K-CEP Phase I invested in over 55 countries. While CCC works globally, it is now (as of 2021) focusing predominantly on regions with the greatest potential to mitigate the climate impacts of cooling: China, India, Southeast Asia, and the United States.</td>
<td>Targeted regions: ✓ Global</td>
</tr>
</tbody>
</table>
### Purpose and objectives

CLASP is an international non-profit organization, which aims to improve the environmental and energy performance of the appliances and related systems, including refrigeration and air conditioning appliances, lessening their impacts on people and the planet. Since 1999, CLASP has worked in over 50 economies, developing and sharing transformative policy and market solutions in collaboration with global experts and local stakeholders. CLASP also seeks to accelerate clean energy access anchored to the following global priorities: economic empowerment, agriculture, women and gender, and health.

### Governance

CLASP’s activities are supported by grants from various government agencies, foundations, international organizations and other entities. A board of directors governs CLASP, and its operations are managed by an international team based in the U.S., Kenya, India, Indonesia, China, and Europe. The team focuses on energy and quality standards, labelling and buyer education, awards and product recognition, research, and compliance, testing and quality assurance.

### Key activities

In order to increase market uptake of affordable, low-impact and high-quality appliances, CLASP convenes stakeholders, conducts analyses, identifies best practices, shares knowledge, provides guidance for decision-makers, builds capacity and aims to transform markets.

CLASP supports ambitious interventions that expand access to cooling, a fundamental human right, while mitigating its harmful effects on the climate. CLASP’s cooling theory of change is to:

- **Cut Carbon**: Reduce the climactic effects of products through policies and standards;
- **Drive Scale**: Leverage financing and bulk purchasing to make high-quality products more affordable for companies and consumers and transform markets;
- **Innovate**: Partner with key institutions and investors to develop Technology Roadmaps, support and deploy R&D, and surface information on product performance, market trends, and consumer preferences through research;
- **Address the Whole Market**: Partner with governments and their constituents to strengthen National Cooling Action Plans and comprehensively address all cooling service segments.

### Current funding

2021 revenue from grants and other income/kind contributions: USD 16,877,815

### Targeted regions

Global
### Environment and Climate Change Canada Montreal Protocol Bilateral Program

**Lead organization:** Environment and Climate Change Canada (ECCC) in collaboration with the United Nations Development Programme (UNDP)


**Current funding:** US$ 2.51 million over the period 2018-2021.

**Current beneficiary countries:** Current beneficiary countries include Bangladesh, Belize, Chile, Colombia, Cuba, Dominican Republic, El Salvador, Jamaica, Mexico, Panama and Peru. The geographic focus may expand in the future.

**Purpose and objectives**

ECCC’s Montreal Protocol Bilateral Program has been assisting developing countries in complying with their obligations under the Montreal Protocol since 1993, with more than 40 bilateral projects completed, representing a total of nearly US$ 10 million. The program is designed in part to fulfill Canada’s financial obligations to the Multilateral Fund for the Implementation of the Montreal Protocol. Like other donor parties, Canada can provide up to 20% of its assessed contributions to the Multilateral Fund through “in-kind” bilateral assistance. Part of the funding for projects under the program thus counts towards Canada’s assessed contributions to the Fund, while additional funding supports activities beyond Canada’s bilateral assistance under the Fund. Since 2018, the program has been specifically oriented toward supporting the implementation of the Kigali Amendment on the phase-down of HFCs, thereby contributing to climate change mitigation.

**Governance**

The Montreal Protocol Bilateral Program is an integral part of the Canadian Government, housed in and financed by ECCC. Historically, the program has partnered with the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), the United Nations Industrial Development Organization (UNIDO) and national institutions of recipient countries. Currently, UNDP is the executing agency for all ongoing bilateral projects on behalf of ECCC, in collaboration with the National Ozone Units of each country. UNDP provides additional funding for the projects from funds approved for it under the Multilateral Fund and other sources.

**Key activities**

The Program’s current portfolio (US$ 2.51 million over 2018-2021) includes bilateral projects in 11 developing countries. These projects support: (a) investment activities to contribute to the adoption of low-global warming potential alternatives to HFCs in the refrigeration and air-conditioning sector; and (b) technical assistance and capacity building to enable the ratification and implementation of the Kigali Amendment. Expected results include: (a) elimination of 289,463 tonnes CO2eq of HFCs used annually for the manufacturing of refrigeration equipment in Mexico and the Dominican Republic; (b) ratification of the Kigali Amendment by beneficiary country governments; and (c) enabling of government and industry stakeholders to fully implement the Kigali Amendment once ratified, including through the development of legal and regulatory instruments, raising awareness with respect to the ratification of the Kigali Amendment, the development of national HFC phase-down strategies, and training of stakeholders. Potential co-benefits include improvements to energy efficiency in the cooling sector and contributions towards more sustainable climate change adaptation and cold-chain development through increased availability of climate-friendly cooling.

ECCC’s Program is designed to support developing countries’ implementation of the Montreal Protocol and its Kigali Amendment by contributing to and complementing the Multilateral Fund. It consists in part of activities approved under the Multilateral Fund to support the implementation of the Kigali Amendment in developing countries and also provides additional support for activities that go beyond the funding approved under the Multilateral Fund. Investment projects directly eliminate HFC consumption in specific enterprises, thus contributing to reducing overall HFC consumption in the beneficiary country. Technical assistance and capacity-building, such as provided under “enabling activities”, allow countries to establish domestic processes, policies, regulations, and strategies to initiate the control of and eventually the phase-down of HFC consumption at the national level. These activities are essential for creating a framework for countries to comply with the Kigali Amendment.

**Type of organization:** Government

**Activity type:**

- Manufacturer conversions
- Capacity-building
- Technical assistance
- Advocacy and awareness-raising

**Primary cooling objective:**

- Refrigerant/HFC phase-down

**Secondary cooling objective:**

- Reducing energy consumption from cooling

**Sector(s) addressed:**

- Domestic refrigeration
- Commercial refrigeration
- Industrial refrigeration
- Transport (mobile) refrigeration
- Domestic AC
- Commercial AC
- Mobile AC

**Type of funding:**

- Grant funding

**Targeted regions:**

- Global
- All developing countries

<table>
<thead>
<tr>
<th>All Africa</th>
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<tr>
<td>Latin America and the Caribbean</td>
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<td>All Asia</td>
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Environmental Investigation Agency – various cooling workstreams

Lead organization: Environmental Investigation Agency (EIA)

Purpose and objectives
EIA is a non-profit non-governmental organization that works to avert climate catastrophe by strengthening and enforcing regional and international agreements that tackle short-lived climate super-pollutants, including refrigerant gases, and advocating corporate and policy measures to promote the transition to a sustainable cooling sector.

EIA has been directly involved in the Montreal Protocol for over two decades. EIA’s campaign is focused on maximising the climate impact of the HCFC phase-out and HFC phase-down under the Montreal Protocol, including advocating funding guidelines which embed energy efficiency considerations. EIA is currently seeking to strengthen the monitoring, reporting and verification (MRV) processes under the Montreal Protocol to ensure sustainability of its controls.

Governance
EIA has offices in the UK, European Union (EU) and the USA. Within Europe, EIA works with a coalition of EU-based organizations: 2Celsius, ECODES, ECOS, EEB, CAN-E, Climate Advisors Network, DUH, Legambiente and ZERO. EIA also partners with Greenpeace in the cooltechnologies.org database of climate-friendly cooling equipment.

Key activities
EIA campaigns to secure strong implementation of the EU F-Gas Regulation, including through investigating and exposing the illegal trade of HFCs. EIA is leading the NGO campaign to ensure measures are agreed upon in the current review of the EU F-Gas Regulation that will preserve the existing ambition in the Regulation through improving compliance and enforcement and strengthen it with new regulatory measures that will spearhead the wholesale transition to climate-friendly alternatives in the cooling sector. EIA works with national NGO partners in numerous EU Member States on these efforts and engages policymakers at the EU and Member State levels. EIA is also engaged in the parallel review of the UK F-Gas Regulation.

EIA also targets a robust domestic HFC phaseout in the USA, including targeting comprehensive implementation of the American Innovation and Manufacturing (AIM) Act on all three pillars of the allowance system, technology transitions and lifecycle management of HFCs. Through investigations, corporate engagement and encouraging grassroots advocacy, the organization also seeks to hold major producers and end-users accountable for reducing HFC use and emissions. EIA’s Climate-Friendly Supermarkets (climatefriendlysupermarkets.org) platform encourages grassroots engagement with food retailers to encourage faster uptake of climate-friendly alternatives and improved refrigerant management practices.

EIA engages with cooling networks, cooling equipment manufacturers and suppliers, end-users and policymakers in order to redefine sustainable cooling as cooling that not only improves energy efficiency but also avoids the use of F-gases. In 2021, EIA produced a Pathway to Net-Zero Cooling Product List of energy-efficient cooling equipment using natural refrigerants. These products are also featured in EIA’s interactive database of F-gas-free cooling equipment co-managed by Greenpeace at www.cooltechnologies.org.

EIA directly supports the implementation of the Montreal Protocol and Kigali Amendment through engagement with policymakers and Parties to the Protocol. EIA attends Meetings of the Parties and Meetings of the Executive Committee of the Multilateral Fund as an Observer organization and actively engages with delegates throughout the year, providing technical, legal and policy briefings to advocate strong implementation and climate ambition from the Parties. EIA’s undercover investigations pinpointed the source of illegal CFC-11 emissions, enabling the Parties to the Montreal Protocol to act swiftly to address the sources, leading to an immediate decline in emissions.

EIA’s work on sustainable cooling showcases cost-effective, natural refrigerant-based energy-efficient cooling equipment available on the global market. Their work with end-users, in particular supermarkets, highlights best practices and lessons learned in this sector.

Current funding: £377,600 for the period 2021-2022

Type of funding: Grant funding

Current beneficiary countries: EIA’s initiatives have a global reach with a focus on domestic policy in the US, UK and EU.

Targeted regions: Global
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<td>Northern America</td>
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<td>Southern Europe</td>
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<td>Western Europe</td>
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</table>
**French Facility for Global Environment**

**Lead organization:** French Facility for Global Environment (FFEM - Fonds français pour l’environnement mondial)

**Purpose and objectives**

FFEM supports innovative solutions in developing countries that generate environmental, social and economic benefits for local populations. They help preserve biodiversity, climate, international waters, land and the ozone layer while combating pollution. The FFEM has an unusual approach that involves supporting pilot projects to learn lessons from them and disseminate their innovations on a larger scale.

**Governance**

Any legal entity can submit a project insofar as it fits well into the areas of intervention of the FFEM and if it meets both its criteria of eligibility, financing and geography. Project duration cannot exceed five years. The funding part requested from the FFEM cannot exceed 30% of the overall budget of the project. The FFEM’s grant contribution ranges from €500,000 to €3,000,000 per project.

Project proposals can be submitted at any time to the FFEM Secretariat. In order to present a project to the FFEM, the project initiator must obtain the support of one of the six FFEM member institutions of its Steering Committee. The contact details of each of these institutions are available on the FFEM website.

**Key activities**

Under its current strategy, the FFEM focuses on five priority themes, including Energy transition and resilient cities.

Under the priority theme of “Energy transition and resilient cities,” a specific focus is made on decarbonisation and energy efficiency, including planning, buildings, cooling systems and transport. In relation to cooling, there is a specific focus on air conditioning, cooling and storage networks, green cooling (connected to impacts on the ozone layer), passive solutions for surfaces of buildings (e.g. cool roofs that reflect solar heat), and recovery of heat emitted by air conditioning systems. The FFEM aims to support projects that complement activities funded under the MLF, particularly in relation to the enhancement of energy efficiency while phasing down HFCs. The FFEM supports projects promoting the use of natural refrigerants.

**Current funding:** Grant contribution ranges from €500,000 to €3,000,000 per project. There is no specific allocation among the priority areas of the FFEM.

**Current beneficiary countries:** The FFEM co-finance in any developing country eligible for official development assistance. Priority is given to Africa (around 2/3 of FFEM funding are allocated to projects implemented in Africa).

**Type of organization:** Government

**Activity type:**
- Capacity-building
- Technical assistance
- Research and analysis
- Advocacy and awareness-raising
- End-user conversions

**Primary cooling objective:**
- Refrigerant/HFC phase-down,
- Reducing energy consumption from cooling
- Access to cooling

**Sector(s) addressed:**
- Domestic refrigeration
- Commercial refrigeration
- Industrial refrigeration
- Transport (mobile) refrigeration
- Domestic AC
- Commercial AC
- Mobile AC

**Targeted regions:** Global
## Purpose and objectives

The GFCCC is a coalition of major companies from the global supply chain that move cold food products from field to market around the world, which is committed to advancing broad-based public-private collaborative solutions to maximize the benefits of an expanded food cold chain. The GFCCC’s mission is to simultaneously reduce food waste and related emissions by expanding and improving the food cold chain. Its overall goals specifically include the following:

- Identify, develop and promote technology-neutral policies and actions to reduce the food cold chain waste contribution to greenhouse gas emissions;
- Support solutions that are energy efficient and reliant on low-GWP compounds and equipment that increase access to the food cold chain and reduce food waste;
- Identify and develop standards and practices to increase access to the food cold chain and reduce food waste; and
- Align with and influence international and national bodies, organizations and governments, including the FAO, CCAC, the UN Framework Convention on Climate Change (UNFCCC), and the Montreal Protocol.

## Governance

Announced at the September 2014 United Nations Secretary-General’s Climate Summit in New York City, the GFCCC was formed as one of four lines of action organized under the Climate and Clean Air Coalition (CCAC) HFC Initiative unveiled at that event. The GFCCC is a program of the Business Institute for Sustainability, formerly known as the International Climate Change Partnership, a non-profit industry coalition headquartered in the Washington, D.C. area, first organized in 1991 to participate responsively in the international climate policy process. The Council is directed by a steering committee which sets the organization’s agenda, monitors progress in achieving priorities and oversees budgetary as well as legal matters. The steering committee is led by an Executive Director and two Co-Chairs from the member companies. Presently, GFCCC members are Bitzer, Carrier, Danfoss, Emerson, Johnson Controls, Lennox International, the Australian Food Cold Chain Council, and the European Partnership for Energy and the Environment.

## Key activities

The GFCCC undertakes high-level outreach at various international forums to raise awareness about the climate impact of the global food cold chain and opportunities to reduce energy-related and refrigerant emissions (HFCs and HCFCs) from refrigeration equipment used in global food storage and distribution. The GFCCC also produced the groundbreaking 2015 report, Assessing the Potential of the Cold Chain Sector to Reduce GHG Emissions through Food Loss and Waste Reduction (prepared for the GFCCC by Deloitte), which assessed the climate impacts of an expanded food cold chain and promoted through its web site various report and technical publications related to the global food cold chain and its environmental impact.

In addition, in collaboration with the United Nations Environment Programme, the GFCCC is developing a Cold Chain Database, a model offer and overarching methodology to quantify stocks of equipment and refrigerants, understand gaps, and characterize the environmental impact of project scenarios of food loss and GHG emissions (see separate entry on the Cold Chain Database in this inventory).

## Current funding

Activities undertaken by the GFCCC are funded by individual members on an as-needed basis.

## Current beneficiary countries

Global
**Purpose and objectives**

The GCF is the operating entity of the financial mechanism of the United Nations Framework Convention on Climate Change (UNFCCC). It is a global fund that supports the efforts of developing countries on climate change mitigation and adaptation, particularly the Least Developed Countries, Small Island Developing States, African States and nations that are particularly vulnerable, to respond to the challenge of climate change. While the GCF does not have a specific mandate related to cooling, of the eight impact areas identified for major mitigation and adaptation benefits, the areas of “Energy-efficient buildings, cities and industries” and “Low-emission transport” could be relevant to the cooling sector. Further, in the GCF strategic programming document, promoting minimum energy performance in heat pumps, heating and cooling appliances, and insulation, are identified as interventions for creating an enabling environment for a paradigm shift in energy efficiency.

**Organization**

The GCF implements projects through partnerships with Accredited Entities (AEs), which submit a project proposal, in close consultation with national focal points, for consideration by the GCF Board. AEs can be private or public, non-governmental, sub-national, national, regional or international, as long as they meet the standards of the Fund. To date, 131 organizations have been approved for accreditation. A Secretariat is responsible for the day-to-day operations of the Fund. Funding proposals are submitted to the GCF Secretariat for the review process before consideration of their approval by the GCF Board.

The GCF is financed from a variety of sources, from the public sector (developed countries, but also from some developing countries, regions and cities) and the private sector.

**Key activities**

To date, only a few of the projects approved under the GCF relate to the cooling sector. Of particular note, in October 2021, the GCF approved US $157 million for the World Bank-led project, “Facility for Cooling”. The Facility aims to address the barriers that have so far limited the deployment of clean cooling technologies and put into place support for a broad paradigm shift by working across key cooling target areas and with a range of countries from different parts of the developing world (countries selected are Bangladesh, El Salvador, Kenya, Malawi, North Macedonia, Panama, Sao Tome and Principe, Somalia, Sri Lanka). The Facility seeks to scale and mainstream sustainable cooling applications in a number of key sectors (agriculture, health, buildings), thereby accelerating the deployment of climate-friendly solutions. Activities are categorized among three main components:

- Component 1 – Policy, regulatory and enabling environment support. This component will support activities that aim to strengthen institutional, policy and regulatory frameworks, raise awareness and stimulate behaviour changes, as well as build the capacity of key stakeholders to plan, finance and implement sustainable cooling investments as well as to plan for responses to increased heatwaves and other extreme events.
- Component 2 – Financing for cooling investments. The Facility will provide financing to eligible projects for investments that support and help lock in more resilient, climate-friendly as well as affordable development paths for cooling. Concessional financing will foster the adoption or scale-up the deployment of sustainable cooling technologies, appliances and business models.
- Component 3 – Project management. This component will support the Executing Entities (EEs) and Project Implementing Entities (PIEs) in their management, coordination and implementation of their project activities, in compliance with the EEs’ and PIEs’ contractual obligations included or referred to in the legal agreements entered into with the AEs.

**Current funding**

To date, the GCF has approved about US $10 billion towards programmes and projects. [Portfolio dashboard | Green Climate Fund]

**Type of funding:**

- Grant funding
- Non-grant funding

**Targeted regions:**

- All developing countries
Global Environment Facility

Lead organization: Global Environment Facility (GEF) Secretariat
Website: www.thegef.org

Purpose and objectives
The GEF Trust Fund was established on the eve of the 1992 Rio Earth Summit to help tackle our planet’s most pressing environmental problems. GEF funds are available to developing countries and countries with economies in transition to meet the objectives of the international environmental conventions and agreements. It has five focal areas: biodiversity, climate change, international waters, land degradation, and chemicals and waste. The GEF also takes an integrated approach to support more sustainable food systems, forest management, and cities.

Support is provided to government agencies, civil society organizations, private sector companies, research institutions, and the broad diversity of potential partners, to implement projects and programs in recipient countries.

Governance
GEF funding to support the projects is contributed by donor countries. These financial contributions are replenished every four years by the 40 GEF donor countries. The GEF has 18 Partner Agencies. The Operational Focal Point decides which Agency would be best suited to develop and implement the project idea. This is an important decision since the Agency will be the partner at all stages of the project or program.

Key activities
Under the Chemicals and Waste focal area, the GEF supports the implementation of the Montreal Protocol in countries categorized as having economies in transition (“CEITs”). Under the Climate Change focal area, the GEF also supports all beneficiary countries in climate mitigation and adaptation. Climate mitigation projects include various cooling-related projects addressing the phase-down of refrigerants, improved energy efficiency, and access to sustainable cooling.

To date, the GEF has supported 22 cooling-related projects, among which one is in the pipeline and nine are under implementation, including a project investing in energy efficiency to strengthen the cold value chain of small and medium enterprises in Afghanistan and a project on energy efficiency through the development of low-carbon RAC technologies for Trinidad and Tobago. Two project concepts, promoting energy efficiency for non-HCFC RAC for Indonesia and phasing out HCFCs and promoting HFC-free energy efficient RAC systems for the Russian Federation, have been approved. One project concept on barrier removal for Algeria has been proposed, which encourages and secures market transformation and the labelling of refrigerators and freezers.

Current funding: $4.1 billion over the period 2019-2022

Primary cooling objective:
- Refrigerant/HFC phase-down
- Reducing energy consumption from cooling

Sector(s) addressed:
- Domestic refrigeration
- Commercial refrigeration
- Industrial refrigeration
- Transport (mobile) refrigeration
- Domestic AC
- Commercial AC
- Mobile AC

Current beneficiary countries: Countries may be eligible for GEF funding in one of two ways: a) if the country has ratified the conventions the GEF serves and conforms with the eligibility criteria decided by the Conference of the Parties of each convention; or b) if the country is eligible to receive World Bank (IBRD and/or IDA) financing or if it is an eligible recipient of UNDP technical assistance through its target for resource assignments from the core (specifically TRAC-1 and/or TRAC-2).
**Green Cooling Initiative**

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<tr>
<td>Since 2012 the Green Cooling Initiative has worked in three phases so far on strengthening key actors in public and private sector institutions in the partner countries to make their refrigeration and air conditioning sector sustainable and to achieve their goals within the framework of multilateral agreements such as the Montreal Protocol. Rising temperatures, growing populations and increasing prosperity are increasing the global demand for cooling. At the same time, conventional cooling technologies lead to an increase in greenhouse gas emissions and damage to the ozone layer. Natural refrigerants provide a climate- and environment-friendly and energy-efficient solution for global cooling needs. The work of the Green Cooling Initiative is organized around three pillars: policy advice, technology transfer and capacity building. The first phase of the Green Cooling Initiative was completed in 2018 and helped to design more efficient processes and structures in cooling and climate control and to accelerate the transfer of emission-reducing technologies in developing countries. To this end, partners set up a “green cooling” network to spur cooperation between technology providers and users. This also created incentives for investment in climate-friendly technologies. The second phase (Green Cooling Initiative II) is ongoing and supports the reduction of GHGs emitted by the refrigeration and air-conditioning sector in partner countries. It is also improving the international positioning of environment-appropriate and climate-friendly cooling technologies using natural refrigerants by introducing the topic into global climate and ozone debates. The expansion of global and regional networks with representatives from politics, industry and science enables the dissemination of climate-friendly cooling technologies, and policy advice based on “Technology Roadmaps” supports the partner countries in implementing modern cooling technology standards. In addition, voluntary contributions from the private sector raise the level of willingness to transform and promote Public-Private Partnerships, and partnerships with financing institutions promote replicable financing models and instruments.</td>
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**Governance**

The Green Cooling Initiative is a global initiative focused on the implementation of sustainable cooling and natural refrigerants through various projects and partners. Since 1995, it has been sustainably transforming the cooling sector in emerging and developing countries with support and funding from the German Government, in particular the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, and the Federal Ministry for Economic Cooperation and Development.

**Key activities**

Since August 2021, Green Cooling Initiative III has supported the implementation of regionally adapted sustainable sector strategies in beneficiary countries and effectively introduced the issue of sustainable cooling into the national climate discourse. It also makes financing instruments for green cooling technologies more widely available and establishes a training system for refrigeration and air conditioning technicians.

**Current funding:** €6,500,000 for the period 2021-2024

**Current beneficiary countries:** Colombia, Honduras, Kenya, Thailand, Uganda, Viet Nam

**Type of organization:** Governmental Organization

**Activity type:**
- ✔ Capacity-building
- ✔ Technical assistance

**Primary cooling objective:**
- ✔ Refrigerant/HFC phase-down

**Secondary cooling objective:**
- ✔ Reducing energy consumption from cooling

**Sector(s) addressed:**
- ✔ Domestic refrigeration
- ✔ Commercial refrigeration
- ✔ Domestic AC
- ✔ Commercial AC

**Current funding:**
- Grant funding

**Targeted regions:**
- ✔ Global
**Cooling Program for Southern Africa**

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<tr>
<td>The Cooling Program for Southern Africa aims to prepare framework conditions for an air conditioner (AC) replacement programme in Botswana, Eswatini, Namibia, and South Africa. The number of ACs in the Southern African Development Community (SADC) region will increase from 5.4 million to around 17.7 million by 2030. Climate and energy plans of the SADC members call for greenhouse gas emission reductions and energy efficiency improvements in the cooling sector. High costs and the inaccessibility of ACs using natural refrigerants with ultra-low global warming potential and high energy efficiency are major obstacles to a sustainable transformation of the sector.</td>
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<tr>
<td>Governance</td>
<td>Type of organization: Government</td>
</tr>
<tr>
<td>The project is implemented by GIZ in partnership with South Africa’s Department of Forestry, Fisheries and the Environment and the Department of Mineral Resources and Energy, Botswana’s Ministry of Environment, Natural Resources Conservation and Tourism, Namibia’s Ministry of Environment and Tourism, and Eswatini’s Ministry of Tourism and Environmental Affairs, as well as the GFA Consulting Group GmbH.</td>
<td>Activity type: ✓ Technical assistance ✓ Research and analysis</td>
</tr>
<tr>
<td>Key activities</td>
<td>Primary cooling objective: ✓ Refrigerant/HFC phase-down ✓ Reducing energy consumption from cooling</td>
</tr>
<tr>
<td>Minimum Energy Performance Standards (MEPS), as well as energy labels for ACs, will be prepared and proposed for adoption and enforcement. An AC replacement programme introducing natural refrigerants will be designed. It will be based on the preparation of the supply and demand side and include an end-of-life management concept for old ACs. A sustainable financing instrument will be developed and will comprise concessional finance from development financing institutions and subordinated debt (first loss) finance, which in combination will allow to provide loans below commercial interest rates and possibly also with longer tenors. The project will also create basic preconditions for the transfer of ITMOs from the partner countries through the preparatory development of Article 6-specific methodologies and baseline studies. The overall objective of the ongoing activities to prepare the implementation of the replacement project, which supports participating countries in reaching their goals under the Montreal Protocol and the Paris Agreement.</td>
<td>Sector(s) addressed: ✓ Domestic AC ✓ Commercial AC</td>
</tr>
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<td>Current funding: £1 million over the period 2021-2022.</td>
<td>Type of funding: ✓ Grant funding</td>
</tr>
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<td>Current beneficiary countries: Botswana, Eswatini, Namibia, South Africa</td>
<td>Targeted regions: ✓ Southern Africa</td>
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### A sustainable and climate-friendly phase out of ozone-depleting substances and hydrofluorocarbon mitigation actions for the implementation of the Kigali Amendment under the Montreal Protocol

**Lead organization:** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)  
**https://www.giz.de/en/worldwide/69794.html**

**Type of organization:** International organization  
**Activity type:** ✓ Capacity-building  
✓ Technical assistance  
✓ Research and analysis  

**Primary cooling objective:** ✓ Refrigerant/HFC phase-down  
**Secondary cooling objective:** ✓ Refrigerant life-cycle management  

**Sector(s) addressed:** ✓ Domestic refrigeration  
✓ Commercial refrigeration  

### Purpose and objectives
In collaboration with the United Nations Industrial Development Organization (UNIDO) and the United Nations Development Programme (UNDP) as subcontracted partners, GIZ led the implementation of "A sustainable and climate-friendly phaseout of Ozone Depleting substances (SPODS)", an international programme funded by the European Union (EU) and the German Federal Ministry for Economic Cooperation and Development (BMZ) to build alliances among Latin American and Caribbean countries on global HFC mitigation actions. This regional project aimed to assist seven countries of this region in enhancing their capacities in fulfilling their obligations under the Montreal Protocol related to the ODS phase-out and current HFC mitigation at the same time.

**Key activities**
SPODS provided policy advice, identified pilot projects with new technical solutions, facilitated the transfer of technology and knowledge, and built capacity to assist countries in achieving sustainable cooling. The programme promoted the understanding of the partner countries of how the refrigeration and air conditioning sector contributes to the national energy consumption and total GHG emissions. Alternative climate-friendly solutions, including the use of improved technologies and exchange between the partner countries, were implemented.

Specific activities included the development of action plans for the reduction of climate-related and ozone-depleting refrigerants. The programme also worked with its partners to develop strategies for increasing the availability of natural refrigerants in Latin America and the Caribbean and dispose of obsolete cooling units in a sustainable manner. These activities were accompanied by technical training, particularly on the safe handling of natural refrigerants for the operation and maintenance of cooling units and refrigerators. In addition, the programme offered training on the financing of sustainable projects in the cooling sector. Examples of pilot projects were also identified and supported prior to their implementation and transfer to other countries.

The UNIDO component of the programme contributed to achieving SPODS objectives through capacity building, training, and know-how transferring and promoting inclusive and sustainable industrial development in Grenada, Mexico and Venezuela. The country projects were designed in line with the five SPODS lines of activity, namely, i) Development of a country strategy for HFC mitigation actions; ii) Development of a strategy for infrastructure to provide low-GWP refrigerants; iii) Development of a strategy for end-of-life treatment; iv) Training; and v) Identification and promotion of large scale-pilot projects in refrigeration and air conditioning.

The UNDP component of the programme contributed to achieving SPODS objectives through capacity building, training, identification of opportunities and gaps for the introduction of low-GWP alternatives to HCFC and HFC, and the identification of pilot projects to foster these alternatives; UNDP supported activities in Colombia, Costa Rica, Cuba and Paraguay, along the SPODS lines: ii) Development of a strategy for infrastructure to provide low-GWP refrigerants; iii) Development of a strategy for end-of-life treatment and v) Identification and promotion of large scale-pilot projects in refrigeration and air conditioning.

**Current funding:** €830,000 over the period 2017-2021  
**Type of funding:** ✓ Grant funding  

**Current beneficiary countries:** Colombia, Costa Rica, Cuba, Grenada, Mexico, Paraguay and Venezuela  
**Targeted regions:** ✓ Latin America and the Caribbean
Global Cold Chain Alliance

Lead organization: Global Cold Chain Alliance (GCCA) / World Food Logistics Organization

Website: https://www.gcca.org/

Purpose and objectives

The GCCA represents the private sector companies that handle the transport, storage and distribution of temperature-controlled products. The GCCA is dedicated to the proper handling and storage of perishable products and the development of systems and best practices for the safe, efficient, and reliable movement of food to the people of the world.

Members are impacted by the Montreal Protocol and Kigali Amendment. Therefore the GCCA assists them with policy and regulatory objectives tied to them, answers questions related to retrofitting any facilities, and shares information with one another as they transition to other systems.

Governance

The Global Cold Chain Alliance (GCCA) is an alliance of four international business associations comprised of companies within the perishable foods supply chain and logistics industry. These associations are the Core Partners of the Alliance:

- International Association of Refrigerated Warehouses (IARW)
- World Food Logistics Organizations (WFLO)
- International Refrigerated Transportation Association (IRTA)
- Controlled Environment Builders Association (CEBA)

GCCA membership exceeds 1,100 companies from 92 countries and includes refrigerated warehouses, distribution and logistics companies, as well as academic, civic, and business leaders.

Key activities

The GCCA hosts annual events, expos, education and training for members, and in developing/emerging economies through the international development arm through the implementation of projects. As of 2022, more than 110 projects have been implemented in more than 60 countries. Two certification programs are managed by the Alliance: the Cold Carrier Certification to recognize asset-based carrier organizations for their commitment to the sanitary and safe transportation of perishable products and the GCCA Energy Excellence Recognition Program (EERP), designed to help cold storage warehouse energy usage management. EERP is a tool to communicate a facility's progress in meeting sustainability objectives, allowing cold storage warehouses to be a better partner in overall cold chain sustainability.

Current funding: US $9 million (annual funding not clear)

Type of funding: Grant, finance, loans, In-kind

Current beneficiary countries: 1100 members across 92 countries. Headquartered in the USA (Arlington, VA) and Brazil, and have representative offices in Europe (Belgium), Latin America (Guatemala), India, and South Africa.

Targeted regions: Global
# Cool Up: Upscaling Sustainable Cooling

**Lead organization:** Guidehouse Germany GmbH

**Website:** [www.coolupprogramme.org](http://www.coolupprogramme.org)

## Purpose and objectives

The goal of the Cool Up programme is to catalyse the sustainable cooling transition. The programme seeks to promote the early implementation of the Paris Agreement and the Kigali Amendment to the Montreal Protocol, as well as to accelerate technological change in cooling demand reduction and increase the ambition of and support for the implementation of the Nationally Determined Contributions (NDCs) of target countries. The Cool Up aims to support mitigating climate change through combined efforts in energy efficiency improvements and the transition to sustainable cooling technologies.

## Governance

The Cool Up programme is structured in a consortium. The coordinating organization is Guidehouse Germany GmbH, a leading global provider of consulting services to the public and commercial markets with capabilities in management, technology and risk consulting. International implementing partners include: the United Nations Development Programme; Öko-Research Büro für Umweltforschung und Beratung GmbH; the Frankfurt School of Finance & Management gGmbH (FS); and Institut für Luft- und Kältetechnik gGmbH (ILK Dresden). Regional implementing partners include the Regional Center for Renewable Energy and Energy Efficiency (RCREEE). Local partners include the Royal Scientific Society (RSS), Jordan; the Lebanese Center for Energy Conservation (LCEC), Lebanon; the Integrated Development Group (IDG), Egypt; the Istanbul Aydin University (IAU), Turkey; as well as the Government ministries responsible for the environment in Egypt, Jordan, Lebanon and Turkey (those ministries are not part of the consortium).

## Key activities

Focusing on Egypt, Jordan, Lebanon and Turkey, the Cool Up programme will empower actors to coordinate and implement political, technical, and financial frameworks with an integrated approach. Its approach has four pillars: reducing cooling demand, supporting the phase-down of HFC, replacing and recycling inefficient appliances and refrigerants, and improving cooling appliance operation, training, and awareness. The approach is complemented by establishing partnerships with industry actors, building technical capacity among regional stakeholders, and developing knowledge in demonstration projects. Ultimately the programme intends to create change in the targeted countries concerned by developing lasting institutional capacity, awareness, knowledge exchange, networking of sector actors, and the development of public and private infrastructure.

The Cool Up programme will contribute to the Montreal Protocol and its Kigali Amendment by boosting the uptake and use of natural refrigerants and supporting the phase-down of HFCs. Cool Up will seek to enhance framework conditions and develop recommendations to translate the Kigali Amendment into the specific context and conditions of each partner country, supporting the design, adoption, implementation, and enforcement of sustainable cooling regulations and financing models.

**Current funding:** €19,287,784 over the time-period of 2020-2027.

**Current beneficiary countries:** Core focus in partner countries Egypt, Jordan, Lebanon, and Turkey. The results and learnings will be disseminated in the Middle East and North Africa region.

<table>
<thead>
<tr>
<th>Type of organization:</th>
<th>Private enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity type:</strong></td>
<td>✓ Capacity-building</td>
</tr>
<tr>
<td></td>
<td>✓ Technical assistance</td>
</tr>
<tr>
<td></td>
<td>✓ Research and analysis</td>
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<td></td>
<td>✓ Advocacy and awareness-raising</td>
</tr>
<tr>
<td></td>
<td>✓ Political/high-level outreach</td>
</tr>
<tr>
<td><strong>Primary cooling objective:</strong></td>
<td>✓ Refrigerant/HFC phase-down</td>
</tr>
<tr>
<td></td>
<td>✓ Reducing energy consumption from cooling</td>
</tr>
<tr>
<td><strong>Secondary cooling objective:</strong></td>
<td>✓ Refrigerant life-cycle management</td>
</tr>
<tr>
<td><strong>Sector(s) addressed:</strong></td>
<td>✓ Commercial refrigeration</td>
</tr>
<tr>
<td></td>
<td>✓ Domestic AC</td>
</tr>
<tr>
<td></td>
<td>✓ Commercial AC</td>
</tr>
<tr>
<td><strong>Targeted regions:</strong></td>
<td>✓ Northern Africa</td>
</tr>
<tr>
<td></td>
<td>✓ Western Asia</td>
</tr>
</tbody>
</table>
Technology Collaboration Program on Energy Efficient End-Use Equipment (4E TCP)

<table>
<thead>
<tr>
<th>Purpose and objectives</th>
<th>Website: <a href="https://www.iea-4e.org/projects/air-conditioners/">https://www.iea-4e.org/projects/air-conditioners/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>The aim of the 4E TCP is to promote energy efficiency as the key to ensuring safe, reliable, affordable and sustainable energy systems.</td>
<td></td>
</tr>
<tr>
<td>As an international platform for collaboration between governments, the 4E TCP provides policy guidance to its members and other governments concerning energy-using equipment and systems.</td>
<td></td>
</tr>
<tr>
<td>The 4E TCP prioritises technologies and applications with significant energy consumption and energy-saving potential within the residential, commercial and industrial sectors (not including transport).</td>
<td></td>
</tr>
</tbody>
</table>

**Governance**

The 4E Executive Committee comprises the 15 government members of the 4E TCP and manages 4E projects.

**Key activities**

To achieve its aims, the 4E TCP will: collect data, analyse information, share expertise and pool resources; support and strengthen government policy and regulation; disseminate information to develop greater understanding and promote government actions that encourage the uptake of energy-efficient equipment.

4E TCP has undertaken several projects, and with respect to cooling, it has one ongoing project on load-based testing for variable Speed Air Conditioners & Heat Pumps. This project comprises four phases over a three-year period, designed to develop and test a dynamic load-based test protocol for variable capacity residential air conditioners and heat pumps. The objectives of this project are to better understand the issues that influence results in testing for these products and to develop a test protocol designed to produce accurate and repeatable results in order to:

- Assist 4E members that operate energy efficiency regulatory programmes for air conditioners and heat pumps;
- Improve the testing of variable capacity air conditioners so that the results better reflect real use and are more repeatable,
- Encourage the optimisation of products designs, and
- Enable national compliance authorities to check compliance.

Phase 1: Investigative Innovative Testing Initiatives

Examine existing development activities for load-based testing for variable capacity units in 4E countries, where applicable, to contrast and compare approaches. Identify the key issues that require further research. This phase includes holding a meeting with interested parties such as manufacturers, researchers, and test laboratories to obtain insights and initial feedback.

Phase 2: Investigative Testing

Conduct laboratory testing to investigate and resolve issues identified in phase 1 prior.

Phase 3: Development of Guidelines for Dynamic Load-Based Test Procedure

Develop a detailed, unified test method, building off existing test methods and incorporating modifications that reflect the information developed in phases 1 and 2.

Phase 4: Round Robin Trial of Test Procedure

This involves conducting a round-robin amongst test laboratories to check that the procedure is reproducible and repeatable. 4E countries will nominate one or more test laboratories in each country if they wish to participate. Laboratory participation costs will be funded by the host country. After the completion of this phase, an analysis of the results will be undertaken and shared with the participating laboratories, together with proposed improvements to the test procedure.

| Type of organization: International organization |
|-----------------------------------------------|------------------------------------------------|
| Activity type:  | ✓ Capacity-building  |
|                 | ✓ Technical assistance  |
|                 | ✓ Research and analysis  |
| Primary cooling objective:  | ✓ Reducing energy consumption from cooling  |
| Secondary cooling objective:  | ✓ Refrigerant/HFC phase-down  |
| Sector(s) addressed:  | ✓ Domestic AC  |
Current funding: €170,000 over the period 2020-2022. In addition, participating 4E members provide in-kind funding for their laboratories to take part in the round-robin and provide management of the project as in-kind support.

| Current beneficiary countries: Australia, Austria, Canada, China, Denmark, European Commission, France, Japan, Korea, Netherlands, New Zealand, Switzerland, Sweden, UK and USA | Type of funding: | ✓ Non-grant funding  
| ✓ In-kind |

| Targeted regions: | ✓ Global |
### Super-Efficient Equipment and Appliance Deployment Initiative (SEAD)

**Lead organization:** International Energy Agency (IEA)  
**Website:** [https://superefficient.org/](https://superefficient.org/)

**Purpose and objectives**

The Super-efficient Equipment and Appliance Deployment (SEAD) Initiative is a voluntary collaboration between 21 member governments to address urgent global energy challenges and promote the manufacture, purchase, and use of energy-efficient appliances, lighting, and equipment worldwide. The SEAD Initiative fosters information exchange on policies and activities, allowing participants to take advantage of best practices and lessons learned by other countries and identify opportunities for bilateral and multilateral cooperation.

**Governance**

SEAD is an initiative under the Clean Energy Ministerial (CEM). The IEA is the administrative body for SEAD, managed by an international steering committee made up of the European Commission, India, Sweden and the United Kingdom.

**Key activities**

Since its inception in 2009, SEAD has developed tools, conducted technical analyses, and provided member governments with access to high-quality research and expertise around a variety of product areas and market transformation activities. The Initiative convenes regular working groups focused on specific policy areas and facilitates cooperation among member governments to leverage existing resources and maximize policy impacts.

SEAD also provides direct technical assistance to support the development of best practice appliance energy efficiency policies and programs around the world. In addition to the ongoing support provided to member governments, SEAD has supported policy and program development in West Africa, Kenya, the Philippines, Brunei, and Southeast Asia.

A key activity is the COP26 Product Efficiency Call to Action. To do this, the UK, as COP26 President, and the IEA have launched the COP26 Product Efficiency Call to Action. It aims to strengthen the SEAD Initiative to support countries in achieving higher ambition more quickly, more easily and at a lower cost.

**Call to Action Objectives:**

1. Set countries on a trajectory to double the efficiency of key products sold globally by 2030 (industrial motors systems, residential lighting, air conditioners and refrigerators)
2. Support the delivery of crucial national climate change targets
3. Provide consumers and businesses with more efficient products that are affordable and cost-effective to own and operate
4. Stimulate innovation and provide businesses with increased market and export opportunities
5. Promote a dual course of action, making products both energy-efficient and climate-friendly by reducing the use of refrigerants in cooling appliances

**Current funding:** As a voluntary initiative Member Governments fund their own activity

**Current beneficiary countries:** Not provided

**Targeted regions:** Global
IFC TechEmerge Sustainable Cooling Innovation (IFC TE SCI)

**Lead organization:** International Finance Corporation (IFC)

<table>
<thead>
<tr>
<th>Purpose and objectives</th>
<th>Website: <a href="https://www.techemerge.org/basic-page/sustainable-cooling">https://www.techemerge.org/basic-page/sustainable-cooling</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The TechEmerge Sustainable Cooling Innovation (TE SCI) programme, implemented in partnership with the government of the United Kingdom, brings innovative sustainable cooling technologies to new markets, driving sustainable innovation to emerging economies where it is needed most. The goal of the programme is to accelerate the adoption of innovative cooling technologies, business models and services by corporates and other organisations in selected markets. The specific objectives of the programme are to:</strong></td>
<td><strong>Type of organization:</strong> International organization</td>
</tr>
</tbody>
</table>
| ✓ Reduce energy consumption and costs of cooling; | **Activity type:** ✓ Manufacturer conversions  
| ✓ Enable access to or improve cooling services; | ✓ End-user conversions  
| ✓ Reduce or avoid GHG emissions resulting from cooling (direct/indirect); | ✓ Capacity-building  
| ✓ Facilitate financing for the adoption of new/innovative technologies/products/services. | ✓ Technical assistance  

The Programme contributes to World Bank Group Action Plan on Climate Change Adaptation and Resilience.

**Governance**

IFC is part of the World Bank Group and the largest global development institution focused on the private sector in emerging markets.

TechEmerge uses a competitive process to select innovative companies, which are then invited to meet with leading corporates and municipalities in emerging economies to discuss how to pilot their technology, product, or service and commercialize them in local markets. IFC and a panel of industry experts provide support during market entry and technology transfer to offset financial and operational risks for innovators and adoption risks for local governments, corporates, and other partners.

**Key activities**

TechEmerge pursues its objectives through:

✓ Identifying specific sectors and market segments where innovative sustainable cooling technologies can be deployed to de-bottleneck development challenges;

✓ Screening and identifying innovative, proven technology solutions [Innovators] from around the world, including home-grown solutions, and matching them with corporates and other organizations [Adopters] in select markets that are providing and/or using cooling services;

✓ Providing financial and technical support for select matched pairs of Innovators and Adopters to conduct local pilots of technologies to improve cooling efficiency and reach;

✓ Supporting adoption and uptake of the technologies through commercial partnerships.

The programme will further explore, and when appropriate, design and pilot new initiatives that will complement and enhance the proven TechEmerge methodology in areas such as conducting regulatory reviews, enhancing innovator-to-innovator collaboration, and supporting regional/global scale-up of successful technologies and PPP models for providing of cooling services.

Among the initiatives currently conducted by TE SCI are the following:

• **Cooling Cities - Latin America:** From 112 applications across 20 countries, 13 cutting-edge innovators from eight countries and 18 leading Latin American companies were selected to pilot new sustainable cooling solutions on the ground in Mexico and Colombia.

• **Temperature-Controlled Logistics – Nigeria:** From 70 applications across 19 countries, 11 global innovators have been selected to partner with 15 leading Nigerian companies to pilot cost-effective, climate-smart technologies to strengthen the country’s temperature-controlled logistics supply chain, as part of IFC’s award-winning TechEmerge program in partnership with African digital logistics platform Kobo360.

• **Cooling in the Hospitality Sector – India:** This initiative seeks innovative, climate-smart, cost-effective technologies and business models, including homegrown Indian solutions, which can meet IHCL’s cooling needs. These solutions should have the potential to be scaled across IHCL’s global business and with other hospitality companies in India and the region more broadly.

**Type of organization:** International organization

**Activity type:** ✓ Manufacturer conversions  
| ✓ End-user conversions  
| ✓ Capacity-building  
| ✓ Technical assistance  
| ✓ Research and analysis  
| ✓ Advocacy and awareness-raising  

<table>
<thead>
<tr>
<th>Primary cooling objective:</th>
<th>✓ Reducing energy consumption from cooling</th>
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</thead>
<tbody>
<tr>
<td>Secondary cooling objective:</td>
<td>✓ Access to cooling</td>
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</tbody>
</table>

| Sector(s) addressed: | ✓ Commercial refrigeration  
| ✓ Industrial refrigeration  
| ✓ Transport (mobile) refrigeration  
| ✓ Commercial AC  

<table>
<thead>
<tr>
<th>Type of organization:</th>
<th>International organization</th>
</tr>
</thead>
</table>
| Activity type: | ✓ Manufacturer conversions  
| ✓ End-user conversions  
| ✓ Capacity-building  
| ✓ Technical assistance  
| ✓ Research and analysis  
| ✓ Advocacy and awareness-raising  
| Primary cooling objective: | ✓ Reducing energy consumption from cooling |
| Secondary cooling objective: | ✓ Access to cooling |

| Sector(s) addressed: | ✓ Commercial refrigeration  
| ✓ Industrial refrigeration  
| ✓ Transport (mobile) refrigeration  
| ✓ Commercial AC  

**Website:** [https://www.techemerge.org/basic-page/sustainable-cooling](https://www.techemerge.org/basic-page/sustainable-cooling)
<table>
<thead>
<tr>
<th>Current funding: US$ 11 million for the period 2019 – 2023</th>
<th>Type of funding:</th>
<th>✓ Grant funding, in-kind</th>
</tr>
</thead>
</table>
| Current beneficiary countries: Latin America, Nigeria, India. Additional initiatives are planned to be launched across Africa, Latin America and Asia during 2022. | Targeted regions: | ✓ Global  
✓ Africa  
✓ Latin America and the Caribbean  
✓ Asia |
Purpose and objectives
In the face of the climate emergency, IGSD’s goal is to accelerate and scale up fast mitigation actions to slow self-reinforcing climate feedbacks and tipping points and limit global temperature to 1.5°C, including by reducing short-lived climate pollutants (SLCPs), which can slow warming one to two decades sooner than CO₂-focused strategies alone, avoid two to six times more warming at 2050 than CO₂ cuts can, and reduce projected warming in the Arctic by two-thirds and the rate of global warming by half. IGSD’s work focuses on three priority areas—policy, science, and technology—all supported by a robust media effort. For the past several years, IGSD has focused on phasing down hydrofluorocarbons (HFCs) under the Montreal Protocol to avoid up to 0.5°C of warming by the end of the century, and on promoting a parallel effort to improve the energy efficiency of cooling equipment during the HFC phasedown. IGSD spearheaded and coordinated the analysis showing that pairing energy efficiency improvement with the HFC phasedown has the potential to double the climate benefits, with avoided direct and indirect cumulative emissions of up to 38–60 GtCO₂e by 2030, by 130–260 GtCO₂e by 2050, and by 210–460 by 2060, depending on future rates of decarbonisation of electricity generation, according to the UNEP and IEA Cooling Synthesis Report and CCAC Assessment of climate and development benefits of efficient and climate-friendly cooling.

IGSD has expertise in barrier removal and identifying innovative technological solutions. For example, IGSD coordinated the CCAC project demonstrating secondary-loop mobile air conditioning with partners Tata Motors Limited and MAHLE Behr Troy Inc. as an energy-efficient alternative design that allows for the use of low-GWP refrigerants with no patent restrictions.

Governance
IGSD is a non-profit, non-government organization. IGSD’s activities are supported by grants from various foundations, international organizations and other entities. A board of directors governs IGSD, and its operations are managed by an international team. IGSD has offices in the USA and France.

Key activities
IGSD is currently working to raise awareness of the shared responsibility of exporting and importing governments and organizations to stop the environmental dumping of inefficient and high-GWP cooling equipment. This practice imposes environmental and economic costs on developing countries and threatens compliance with Montreal Protocol and other treaty obligations.

IGSD is also working to promote public and private buyers clubs to drive demand for high-efficiency and climate-friendly equipment, including a procurement guide developed with the Sustainable Purchasing Leadership Council: https://www.climatefriendlycooling.com/about.html. A key component of this effort is tracking regulations affecting access to alternative refrigerants at https://www.hfcbans.com/.

Current funding: N/A

Current beneficiary countries: IGSD’s initiatives have a global reach.
### International Institute of Refrigeration

**Lead organization:** International Institute of Refrigeration (IIR)  

<table>
<thead>
<tr>
<th>Purpose and objectives</th>
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</thead>
<tbody>
<tr>
<td>The IIR is an independent intergovernmental organization that gathers scientific and</td>
</tr>
<tr>
<td>technical knowledge in every sector of refrigeration. Founded in 1908, it currently</td>
</tr>
<tr>
<td>has 59 member countries and has developed a worldwide network of leading experts. The</td>
</tr>
<tr>
<td>IIR is committed to disseminating knowledge of refrigeration to improve the quality of</td>
</tr>
<tr>
<td>life for all, while respecting the environment and taking into account economic</td>
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<tr>
<td>imperatives.</td>
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<table>
<thead>
<tr>
<th>Governance</th>
</tr>
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<tbody>
<tr>
<td>The IIR is governed by (a) a General Conference, which meets once every four years to define</td>
</tr>
<tr>
<td>the general policy of the IIR and consists of representatives appointed by Member</td>
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<tr>
<td>Countries; (b) an Executive Committee, which meets once a year and handles the</td>
</tr>
<tr>
<td>administrative and financial aspects of the Institute; and (c) a Management Committee,</td>
</tr>
<tr>
<td>which meets twice a year and is responsible for the management of the IIR in between</td>
</tr>
<tr>
<td>Executive Committee meetings.</td>
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</tbody>
</table>

| Key activities                                                                                  |  
| Conferences                                                                                     |  
| First held in 1908, the International Congress of Refrigeration of the IIR is a flagship    |  
| event that converges industry and research. Covering all fields of refrigeration, the       |  
| Congress, which takes place every four years, reunites key international stakeholders and  |  
| provides perspectives on the future of the industry in line with sustainable development.  |  
| In addition to the International Congress, the IIR organizes thematic conferences every     |  
| year on a range of topics related to refrigeration.                                        |  

| Publications and other information resources                                                   |  
| The IIR regularly publishes technical documents of relevance to the refrigeration sector,    |  
| including the International Journal of Refrigeration (IJR) (published for the IIR by       |  
| Elsevier), which is essential reading for all those wishing to keep abreast of research and |  
| industry news in refrigeration, air conditioning and associated fields. Among the         |  
| information resources managed by the IIR is the FRIDOC database, which with more than       |  
| 100,000 indexed documents, is the world's most comprehensive database dedicated to         |  
| refrigeration information. It covers every sector of refrigeration and compiles documents   |  
| from scientific and technical works from across the globe.                                  |  

| Projects                                                                                       |  
| Over the past ten years, the IIR has been a key consortium partner in international,         |  
| European and national funded projects. These projects further support the core mission of   |  
| the IIR to disseminate knowledge on refrigeration in order to improve the quality of life in |  
| a cost-effective and environmentally sustainable manner. Examples of projects the IIR is   |  
| currently partnering in include the following:                                                |  
| - India: The IIR is identifying cold chain activities and gaps as part of a World Bank      |  
| development project that aims to support the government of West Bengal in the implementation |  
| of Inland Water Transport, Logistics and Spatial Development infrastructure to facilitate   |  
| the movement of both passengers and freight across the Hooghly River and to plan a spatial   |  
| framework to enhance accessibility within the Kolkata Metropolitan Area.                     |  
| - Bangladesh: The IIR is identifying and providing training on sustainable cold chain       |  
| refrigeration solutions as part of a World Bank project that aims to support the             |  
| agricultural sector in Bangladesh to overcome the social, cultural, and technical            |  
| challenges encountered in the livestock and dairy sector.                                    |  
| - Sub-Saharan Africa: The IIR is collaborating with the European Commission in a project    |  
| called SophiA, which will enable a growing number of African populations to access carbon- |  
| neutral energy for electricity, heating and cooling of food and medicine as well as safe     |  
| and clean drinking water, thereby increasing the quality of life in a sustainable way.      |  
| - Global: The IIR is supporting CoolFish, a project Funded by the Norwegian Research Council |  
| that aims to develop integrated technologies to provide energy-efficient and                 |  
| climate-friendly cooling, freezing, and heating for fishing vessels.                          |  

Current funding: Total funding US$ 27.5 million for projects over the time-period of 2019-2026.

| Website: | www.iiriir.org |  
|**Type of organization:** | International organization |  
|**Activity type:** | ✓ Capacity-building  
| ✓ Research and analysis  
| ✓ Advocacy and awareness-raising  
| ✓ Political/high-level outreach |  
|**Primary cooling objective:** | ✓ Refrigerant/HFC phase-down  
| ✓ Reducing energy consumption from cooling  
| ✓ Access to cooling |  
|**Sector(s) addressed:** | ✓ Commercial refrigeration  
| ✓ Transport (mobile) refrigeration Domestic AC  
| ✓ Commercial AC |  
|**Type of funding:** | ✓ Grant funding |
Beneficiary countries of current projects: Europe, particularly Western Europe and French overseas territories; developing countries, particularly South Asia (India, Bangladesh...) and Sub-Saharan African countries.

<table>
<thead>
<tr>
<th>Targeted regions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Global</td>
</tr>
<tr>
<td>✓ All developing countries</td>
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<tr>
<td>✓ Eastern Africa</td>
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<tr>
<td>✓ Middle Africa</td>
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<tr>
<td>✓ Southern Africa</td>
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<tr>
<td>✓ Western Africa</td>
</tr>
<tr>
<td>✓ Southeastern Asia</td>
</tr>
<tr>
<td>✓ Europe</td>
</tr>
<tr>
<td>✓ Western Europe</td>
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<tr>
<td><strong>Initiative on Fluorocarbons Life Cycle Management</strong></td>
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<tr>
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</tr>
<tr>
<td><strong>Purpose and objectives</strong></td>
</tr>
<tr>
<td>The Initiative on Fluorocarbons Life Cycle Management (IFL) was launched in 2019, given the urgent need to address climate change comprehensively and the increasing demand for fluorocarbons as refrigerants in the cooling sector. IFL put its focus on addressing fluorocarbons emissions throughout the RAC equipment’s life cycle, including leakage in use and discharge to the air at disposal. Through promoting the life cycle management of fluorocarbons, IFL aims to reduce emissions significantly and contribute to mitigating climate change as well as ozone depletion (by HCFCs and CFCs). The IFL supports the implementation of the Montreal Protocol and its Kigali Amendment by promoting the life cycle management of fluorocarbons. Through capacity building and technical assistance focusing on RAC equipment maintenance, destruction, and recycling of recovered fluorocarbons, the IFL contributes to reducing the consumption of fluorocarbons globally. IFL will also contribute to improving resource efficiency, spurring innovation, and promoting sustainable economic growth and quality jobs.</td>
</tr>
<tr>
<td><strong>Governance</strong></td>
</tr>
<tr>
<td>As of October 2021, the IFL has 14 countries and international organizations as its partners. They are Chile, France, Japan, Maldives, Mongolia, New Zealand, the Philippines, Singapore, the United Kingdom, Vietnam, the World Bank (WB), Asian Development Bank (ADB), Climate and Clean Air Coalition (CCAC), and the United Nations Industrial Development Organization (UNIDO).</td>
</tr>
<tr>
<td><strong>Key activities</strong></td>
</tr>
<tr>
<td>IFL offers capacity-building programs and technical assistance to introduce sound policies and relevant technologies and techniques in developing countries. The initiative will facilitate concrete actions and innovation and the collaboration among governments, the private sectors, and international institutions for our mutual benefits and support to strengthen the life-cycle management of fluorocarbons, while collaborating with existing activities and frameworks.</td>
</tr>
<tr>
<td><strong>Current funding:</strong> US $1.5 million. The IFL is an initiative promoting global awareness of the life cycle management of fluorocarbons which mainly offers in-kind capacity building and technical assistance to developing countries. The IFL does not have a funding program.</td>
</tr>
<tr>
<td><strong>Current beneficiary countries:</strong> not provided</td>
</tr>
</tbody>
</table>
Purpose and objectives

The MLF is the financial mechanism of the Montreal Protocol. Specifically, the Multilateral Fund provides assistance to developing countries that are Parties to the Montreal Protocol and whose annual per capita consumption and production of CFCs and halons is less than 0.3 kg on the date of entry into force of the Montreal Protocol or any time thereafter until 1 January 1999. The countries that meet these criteria are referred to as Article 5 countries. Currently, 147 of the 197 Parties to the Montreal Protocol meet these criteria.

Since 1991 and as of the end of 2020, implementation of the projects and activities funded under the Multilateral Fund has resulted in the phase-out of 289,191 ODP tonnes and 500,994 mt CO2-eq of consumption and 205,377 ODP tonnes of production of controlled substances had been phased out of an expected total of 469,653 ODP tonnes and 521,729 mt CO2-eq.

Governance

The Multilateral Fund was set up by the Parties to the Montreal Protocol to assist developing countries in complying with the terms of the Montreal Protocol, an international agreement that sets out a timetable for the phase-out of controlled substances under the Protocol in both developed and developing countries. The Fund is managed by an Executive Committee (ExCom) consisting of 14 Parties that are selected annually by the Meeting of the Parties and administered by a Secretariat, which reviews project proposals and makes funding recommendations to the ExCom. Funds are allocated to four implementing agencies that are responsible for the implementation of the projects and reporting to the ExCom: the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the United Nations Industrial Development Organization (UNIDO) and the World Bank.

Contributions to the Multilateral Fund are provided by non-Article 5 Parties (i.e. developed countries that are party to the Montreal Protocol). The replenishment of the Multilateral Fund is agreed upon by the Parties over a three-year period; the funding level of each replenishment varies, depending on the needs of Article 5 Parties to meet their obligations under the Montreal Protocol. Since its inception in 1991 (and as of October 2021), the total income to the Multilateral Fund amounts to US $4.4 billion. Funding for every triennium is allocated for a period of the relevant three years; this amount is negotiated at the end of every previous triennium by the Parties; the levels of funding vary.

Key activities

The Multilateral Fund provides funding for investment projects, training programmes, and technical assistance activities to phase out controlled substances used in various industrial applications (e.g., aerosol, foam, refrigeration and air-conditioning (manufacturing and servicing), fire protection, solvent) and agricultural applications (as a fumigant). Assistance is also provided for the closure of the production of controlled substances. Most controlled substances still used in developing countries consist of HCFCs and HFCs, and the majority of these are used in refrigeration and air conditioning applications. Therefore, the majority of the MLF’s funded projects currently target the cooling sector.

Current funding: US $50-200 million/year.

Current beneficiary countries: Currently, 144 Article 5 countries are receiving assistance from the Multilateral Fund

Type of organization: International organization

Activity type: ✓ Manufacturer conversions ✓ Capacity-building ✓ Technical assistance ✓ Advocacy and awareness-raising ✓ Political/high-level outreach

Primary cooling objective: ✓ Refrigerant/HFC phase-down ✓ Refrigerant life-cycle management

Sector(s) addressed: ✓ Domestic refrigeration ✓ Commercial refrigeration ✓ Industrial refrigeration ✓ Transport (mobile) refrigeration ✓ Domestic AC ✓ Commercial AC ✓ Mobile AC

Type of funding: ✓ Grant

Targeted regions: ✓ All developing countries
**Global Cooling Prize**

**Lead organization:** Rocky Mountain Institute (RMI)

**Purpose and objectives**

In November 2018, an international coalition led by RMI, the Department of Science & Technology (DST) of the Government of India, and Mission Innovation launched the Global Cooling Prize to spur the development of super-efficient, climate-friendly, and affordable cooling solutions that meet the world’s booming demand for cooling without contributing to runaway climate change. The Global Cooling Prize is an international competition that calls upon participants around the world to develop a breakthrough residential cooling technology that has at least five times less climate impact when compared to a baseline unit. The solution must meet a variety of climate- and resource-focused criteria, while also operating within cost and scalability constraints. The competition takes place over the course of two years and allows participants the opportunity to address one of the single largest end-use risks to our climate. The results are expected to provide benefits globally, with a focus on solving the cooling dilemma (increased access to cooling without the environmental cost) in India.

**Governance**

The main executive body of the Global Cooling Prize is the Supervisory Board, which consists of individuals or organizations that have provided funding commitments of at least US$250,000 (or designees of those funders) to the Prize and have representatives of Energy Ministries of participating nations under Mission Innovation, and select observing members. Operating under the Supervisory Committee are the Technical Review Committee, the Operating Council and the Investment and Scaling Committee.

**Key activities**

In August 2020, six finalist teams delivered two prototypes to be evaluated with reference through comprehensive testing methodologies. In April 2021, two finalists were declared as winners that exceeded the prize criteria. Preliminary analysis indicates that the current test standards recognize only 69% or just over two-thirds of the weighted energy reduction achieved by the winning technologies compared with the baseline unit when operating under simulated real-world conditions.

The testing phase of the prize provided the opportunity to see the contrast between the simulated real-world performance of these next-generation technologies and the results standard used for assessing the performance of room air conditioners in India today, the ‘ISEER’ testing standard, which is based on IS 1391 standard.

The current phase of the prize is focused on identifying the gap in consumption that is not able to be predicted by today’s testing standards, but that can be expected in real-world operation. This is especially relevant in high humidity conditions. According to RMI, it is important that these gaps in today’s testing standards are understood and ultimately addressed with updated methods and protocols that can simulate the conditions sufficiently to predict true performance in the real world. It should also be recognized that care must be taken to not add undue complexity or cost to the testing process, training procedures for labs, or compliance for manufacturers.

**Current funding:** From inception in 2017 US$7.3M, of which US$0.8M applies to the current phase of work. Total Project November 2017 – December 2022 / Current and final Phase November 2021 – December 2022.

**Type of organization:** NGO

**Activity type:**
- ✔ Research and analysis
- ✔ Advocacy and awareness-raising

**Primary cooling objective:**
- ✔ Reducing energy consumption from cooling

**Sector(s) addressed:**
- ✔ Domestic AC

**Targeted regions:**
- ✔ Global
## Cooling for All

**Lead organization:** Sustainable Energy for All (SEforAll)

**Website:** [https://www.seforall.org/cooling](https://www.seforall.org/cooling)

### Purpose and objectives

**Cooling for All advocates for greater action on sustainable cooling and develops evidence, partnerships, policy and tools to make that action possible.** Cooling for All’s mission is to generate the evidence, partnerships, policy and business solutions necessary to provide sustainable cooling for all and to reduce the energy demand needed to achieve this. According to SEforAll’s Chilling Prospects 2021 report, 1.09 billion people are at high risk due to lack of access to cooling and a further 2.34 billion lack access to clean and efficient cooling.

### Governance

Cooling for All is one of 12 programmes housed under SEforALL, an international organization working in partnership with the United Nations, leaders in government, the private sector, financial institutions and civil society, with the goal to drive further and faster action toward the achievement of Sustainable Development Goal 7 (which calls for universal access to sustainable energy by 2030) and the Paris Agreement.

A Cooling for All Secretariat provides a platform for coordinating responses to address access to cooling. The Secretariat aims to identify the challenges of providing access to affordable, sustainable cooling solutions for all, and to seize opportunities to support access initiatives.

There are currently 87 partners within SEforAll, ranging from civil society, funders, hubs and accelerators, and multilateral and private sectors. Key funding partners for Cooling for All include Children’s Investment Fund Foundation, Clean Cooling Collaborative and Swiss Agency for Development and Cooperation (SDC).

### Key Activities

Cooling for All undertakes a range of research and analysis, as well as communication and dissemination activities related to the cooling sector, with a view to providing knowledge and data to understand progress toward achieving sustainable cooling for all. This includes the Chilling Prospects series of reports, a Cooling Solutions Directory, the #ThisisCool communications campaign, the Cooling for All Solutions Tool, and a range of webinars and knowledge briefs on topics such as financing access to cooling solutions, cooling and gender, and the role of the cold chain in delivering a COVID-19 vaccine.

Cooling for All also supports government and development partners to mobilize finance and expand access to cooling with policy and technical assistance in countries developing cooling strategies. The initiative is related to the Kigali Amendment to the Montreal Protocol insofar as it promotes access to sustainable cooling solutions.

### Current funding

Not provided. Range of funding: <US$ 1 million per year

### Targeted regions

- All developing countries
- All Africa
- Northern Africa
- Eastern Africa
- Middle Africa
- Southern Africa
- Western Africa
- Latin America and the Caribbean
- Eastern Asia
- Southeastern Asia
<table>
<thead>
<tr>
<th><strong>ECOFRIDGES Initiative in West Africa</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Lead organization:</strong> U4E and Basel Agency for Sustainable Energy</td>
<td><strong>Website:</strong> <a href="https://www.ecofridgesgo.com/about">https://www.ecofridgesgo.com/about</a></td>
</tr>
<tr>
<td><strong>Purpose and objectives</strong></td>
<td></td>
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<tr>
<td>In collaboration with regional and local partners, ECOFRIDGES aims to accelerate the adoption of energy-efficient and climate-friendly domestic refrigerators and room air conditioners, saving consumers money on their electricity bills, relieving demand on the power sector, and mitigating impacts on the environment.</td>
<td><strong>Type of organization:</strong> International organization</td>
</tr>
<tr>
<td><strong>Governance</strong></td>
<td><strong>Activity type:</strong> ✓ Development of financial mechanism</td>
</tr>
<tr>
<td>The ECOWAS Refrigerators and Air Conditioners Initiative (ECOFRIDGES) is a joint project by the Governments of Ghana and Senegal, the United Nations Environment Programme’s United for Efficiency (UNEP U4E) initiative and the Basel Agency for Sustainable Energy (BASE).</td>
<td><strong>Primary cooling objective:</strong> ✓ Reducing energy consumption from cooling</td>
</tr>
<tr>
<td><strong>Key activities</strong></td>
<td><strong>Secondary cooling objective:</strong> ✓ Access to cooling</td>
</tr>
<tr>
<td>After an extensive market assessment, key findings guided the development of two financial mechanisms: Green On-wage financing (GO) in Ghana and On-bill financing in Senegal. Both financial mechanisms are now operational.</td>
<td><strong>Sector(s) addressed:</strong> ✓ Domestic refrigeration ✓ Domestic AC</td>
</tr>
<tr>
<td>In Ghana, through ECOFRIDGES Green On (GO), local financial institutions aim by 2023 to unlock at least US $11 million in financing to support the purchase of over 15,000 more sustainable cooling appliances and entice the replacement of old existing equipment. The project includes the proper collection and disposal of used appliances, product testing, policy considerations, capacity building, and promotion and awareness campaigns. It sets strict energy performance requirements and limits on the refrigerants of participating products to keep a lid on greenhouse gas emissions. ECOFRIDGES GO-wage financing is a bank loan product designed to address the short- to medium-term financing needs of public and private sector employees through salary deductions to support the replacement of used but operational equipment with certified cooling systems without the burden of upfront investment and the need for collaterals. The employer entity is the guarantor of the salaried customer’s loan, and the mechanism reduces the need for stringent credit assessment and collaterals.</td>
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<tr>
<td>In Senegal, ECOFRIDGES on-bill financing gives consumers the option to finance the purchase through monthly payments on their electric utility bills or other channels that meet their country-specific needs. A simple review of bill payment history, income and other basic information will be used to determine eligibility for financing. A financial tracking tool will be used to follow repayment progress and program operations to assure the viability of the mechanism over time.</td>
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<tr>
<td><strong>Current funding:</strong> US$ 1,250,000 over the time-period of 2019-2021</td>
<td><strong>Type of funding:</strong> ✓ Grant funding</td>
</tr>
<tr>
<td><strong>Current beneficiary countries:</strong> Ghana and Senegal</td>
<td><strong>Targeted regions:</strong> ✓ Western Africa</td>
</tr>
</tbody>
</table>
### Capacity Building Programme for Small Island Developing States (SIDS) on the implementation of the Montreal Protocol

**Lead organization:** United Nations Development Programme (UNDP)

**Website:** www.undp.org

**Purpose and objectives**

All AS (developing) countries, including SIDS, have received support from the Multilateral Fund to manage the ODS. However, the remoteness of SIDS makes the alternatives and logistics of technical support challenging and costly. The tourism and fishery sectors are important to SIDS economies but come with the challenges of phasing out worse refrigerants with ODP and high GWP. The lack of economic scale and expertise in the new technologies prevent SIDS from accessing low-GWP alternatives to HCFCs and HFCs. Therefore, this programme aims to assist SIDS in carrying on the knowledge sharing, training, south-south cooperation and demonstration activities that can help to address the challenges and barriers faced by SIDS in the implementation of the Montreal Protocol.

**Governance**

This program is financed by the Government of New Zealand.

**Key activities**

This program provides capacity building and support to the implementation of the Montreal Protocol in various programme countries in the Small Island Developing States of the Asia-Pacific and Latin America & Caribbean Regions.

Examples of specific activities include:

- The "Green Supply Chain Workshop for Cooling Without Warming" was organized on 8-10 October 2018 in Jakarta. The workshop brought together Ozone Officials, Experts, Private Sectors and Industry Associations to narrow the Supply Chain Gap and foster the understanding of the availability of low GWP technologies for Cooling Solutions.
- Capacity building webinars for the National Ozone Units for Latin America and the Caribbean and Asia and the Pacific on the development of national cooling plans, new technologies and energy efficiency in the refrigeration and air condition sectors, the introduction of low GWP alternatives, HFC phase-down policies such as the licensing and quota systems, etc.
- Demonstration activities to use low GWP alternatives in Fiji, Maldives, Timor Leste
- An initial assessment of the feasibility of introducing District Cooling Solutions in the Dominican Republic and awareness-raising on the potential of district cooling in Grenada, Jamaica, and St. Vincent and the Grenadines
- Establishment of training stands for the use of units based on transcritical CO2 in Trinidad and Tobago.

**Type of organization:** International Organization

**Activity type:**
- Capacity-building
- Technical assistance
- Research and analysis
- Advocacy and awareness-raising
- Political/high-level outreach

**Primary cooling objective:**
- Refrigerant/HFC phase-down
- Refrigerant life-cycle management

**Secondary cooling objective:**
- Reducing energy consumption from cooling

**Sector(s) addressed:**
- Domestic refrigeration,
- Commercial refrigeration,
- Domestic AC
- Commercial AC

**Current funding:** USD 1,088,598 from 2018 to 2022 (ongoing)

**Type of funding:** Grant Funding

**Current beneficiary countries:** Small Island Developing States of the Asia-Pacific and Latin America & Caribbean Regions and currently assists the Maldives, Fiji, Timor-Leste, Belize, Cuba, Dominican Republic, Guyana, Haiti, Jamaica, Saint Vincent and the Grenadines, Suriname and Trinidad & Tobago.

**Targeted regions:**
- Latin America and the Caribbean
- Southeastern Asia
## Climate Promise

**Lead organization:** United Nations Development Programme (UNDP)

**Website:** [www.undp.org/climate-promise](http://www.undp.org/climate-promise)

### Purpose and objectives

The Climate Promise helps countries undertake an inclusive and transparent process to revise and submit enhanced Nationally Determined Contributions (NDCs). In delivering the Climate Promise with its strategic partners, UNDP is scaling up its support for countries to turn their NDC targets into concrete action. Leveraging the NDCs as an umbrella, UNDP brings together its extensive infrastructure and networks to provide comprehensive support for NDC implementation. This effort is underpinned by strong support for green COVID-19 recovery measures, as well as leveraging UNDP’s strength through measures that align with UNDP’s broader portfolio with the Paris Agreement and NDCs. The initiative builds on UNDP’s extensive climate and sustainable development portfolio and partnerships with the UN, NDC Partnership, coalitions, IDBs, private sector, academia and civil society groups.

The Climate Promise supports the Kigali Amendment to the Montreal Protocol by enabling countries to integrate a cooling dimension within various sectors (agriculture, health, transport etc.) with relevant policies and possible measures to be included in NDCs, thereby facilitating the phase-down of HFCs.

On 3 November, during the first week of COP26, UNDP launched the next phase of the Climate Promise - From Pledge to Impact - scaling up its support to turn NDC targets into concrete action in at least 100 countries. This contribution will allow countries to accelerate inclusive action to meet their targets, while continuing to push for greater ambition in climate action.

### Governance

UNDP is delivering the Climate Promise in close collaboration with over 25 key strategic partners. Partnerships include:
- UN system (e.g., UNFCCC, UN Environment, and the Food and Agriculture Organization)
- Financial institutions and funding mechanisms (e.g. World Bank, the Global Environment Facility, and the Green Climate Fund)
- Key alliances (e.g., the NDC Partnership, the IPI NDC Support Cluster, and the Africa Caribbean Pacific Secretariat)
- Academia (e.g., ETH Zurich, Stockholm Environment Institute)
- Private sector, and civil society, NGOs, youth groups, and foundations (e.g., IRENA, New York Declaration on Forests, the Heinrich Boll Foundation)

### Key Activities

Through UNDP’s Climate Promise, support is provided to 120 countries across a range of key technical areas, including enhancing political will and ownership across society, strengthening targets and aligning with key national policies, assessing costs and investment opportunities, as well as setting up the systems for monitoring and reporting on progress.

One of the thematic briefs prepared for UNDP country offices under the Climate Promise was on co-benefits of increasing the ambition of NDCs through efforts on energy efficiency in cooling. Some of the countries included the activities on cooling as part of their revised NDCs.

- **Rwanda:** Increased mitigation ambition, considering the doubling of projected GHG emissions in the country and the expanded coverage of GHG gases by adding HFCs
- **Liberia:** Expansion of the gas coverage by adding HFCs, NOx, CO, NMVOC & SO2
- **Togo:** Integration of quantified levels of four main mitigation sectors, namely energy, Industrial Processes and Product Use (IPPU), Agriculture, Forestry, and Other Land Use (AFOLU), and waste (IPPU and waste as the new sectors). HFCs and SLCPs such as black carbon are added to gas coverage.
- **Nigeria:** GHG coverage increased to include HFCs and short-lived climate pollutants

### Current funding

**N/A. Range of funding:** <US$ 1 million per year

**Type of funding:** Grant funding

**Current beneficiary countries:** Global (120 participating countries)

**Targeted regions:** Global

<table>
<thead>
<tr>
<th>Type of organization</th>
<th>International organization</th>
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<tbody>
<tr>
<td>Activity type</td>
<td>✓ Capacity-building</td>
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<td></td>
<td>✓ Technical assistance</td>
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<td>✓ Research and analysis</td>
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<td>✓ Advocacy and awareness-raising</td>
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<td></td>
<td>✓ Political/high-level outreach</td>
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</table>

| Primary cooling objective | ✓ Refrigerant/HFC phase-down |
|                          | ✓ Reducing energy consumption from cooling |

| Secondary cooling objective | ✓ Refrigerant life-cycle management |

| Sector(s) addressed | ✓ Domestic refrigeration |
|                    | ✓ Commercial refrigeration |
|                    | ✓ Industrial refrigeration |
|                    | ✓ Transport (mobile) refrigeration |
|                    | ✓ Domestic AC |
|                    | ✓ Commercial AC |
|                    | ✓ Mobile AC |
### Cool Coalition

**Lead organization:** The United Nations Environment Programme (UNEP)

**Website:** [http://coolcoalition.org](http://coolcoalition.org)

<table>
<thead>
<tr>
<th>Purpose and objectives</th>
<th>Type of organization: International Organization</th>
</tr>
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<tbody>
<tr>
<td>Recognizing the need to speak with a common voice and accelerate comprehensive action on efficient climate-friendly cooling, UNEP, Clean Cooling Collaborative (CCC), SEforALL and 20 other governments and organizations launched the Cool Coalition in 2019. The Cool Coalition established a platform to bring together actors from governments, international organizations, businesses, finance, academic institutions, and civil society to facilitate joint action, knowledge exchange, technical assistance and advocacy directed at governments and industry. Through these actions, the Cool Coalition provides support to implement ambitious, holistic and cross-sectoral approaches to meet growing demands for cooling, which contributes to broader sustainable development and addressing the climate crisis.</td>
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<tr>
<td><strong>Governance</strong></td>
<td>Activity type:</td>
</tr>
</tbody>
</table>
| The Cool Coalition’s key partner is the Clean Cooling Collaborative and comprises over 120 member organizations. | ✓ Capacity-building
✓ Technical assistance
✓ Advocacy and awareness-raising
✓ Research & analysis
✓ Political/High level outreach
✓ Multi-stakeholder collaboration platform |
| The Cool Coalition Secretariat’s funding is less than US $1 million per annum; a distinction is made between the funding base for the Cool Coalition Secretariat’s coordination and advocacy activities, and funding for implementation projects. Other than very specific instances of Cool Coalition Secretariat involvement, it is expected that funding for implementation activity will be Member-led. In relation to such activities, the Cool Coalition intends to actively engage the funder community and provide leverage for Member funding proposals by communicating ways in which they align with and deliver on priorities articulated in its strategy and work plan. Cool Coalition support for finance facilitation in this way will typically be for joint rather than individual Member funding proposals and will be aimed at mobilising finance behind requests from national governments for assistance on cooling-related programs. | |
| **Key activities** | Primary cooling objective: |
| To deliver on the commitment made at the Climate Action Summit, the SG Climate Action team and Cool Coalition Secretariat are in close consultation with Members, and have identified key activities across three action areas for the period 2022 – 2023: | ✓ Refrigerant/HFC phase-down
✓ Reducing energy consumption from cooling
✓ Access to cooling |
| ✓ Advocacy, Outreach, and Partnerships to Raise Cooling’s profile and unify the Cooling Community: engage in international, regional and national fora to elevate cooling on the international agenda and create partnerships, and Outreach, Events and Communications. | Secondary cooling objective: ✓ Refrigerant life-cycle management |
| ✓ Provide Tools and Knowledge to Accelerate Action for the Cooling Transition: across member engagement activities, training and capacity building, development of knowledge products and publications, and assisting in broadening cooling’s funding base. | Sector(s) addressed: ✓ Domestic refrigeration
✓ Commercial refrigeration
✓ Industrial refrigeration
✓ Transport (mobile) refrigeration
✓ Domestic AC
✓ Commercial AC
✓ Mobile AC
✓ Passive Cooling Technologies
✓ Renewable Cooling
✓ National and Urban Cooling Planning |
| ✓ Selected advisory or early-stage demonstration support to catalyse activity in under-addressed and high-impact areas: focusing on urban cooling, integrated cold chain, and implementation of National Cooling Action Plans (NCAPs). | |
| Many of the Cool Coalition’s activities link with the Montreal Protocol, including through the involvement of CCC as a co-lead of the initiative, and through UNEP’s direct involvement in coordinating related processes, which gives rise to, e.g. opportunities for cooling-related training integrated into Ozone Action Regional Network Meetings, Montreal Protocol Secretariat activities, UN Economic and Social Commissions, FAO, WHO etc. Such activities bring together communities that work on energy efficiency, climate, ozone, agriculture, health etc., and reflect the Cool Coalition’s objective to provide a comprehensive approach and platform for collaboration on efficient and climate-friendly cooling. | |
| **Current funding:** [Not provided] | Type of funding: ✓ Grant funding
✓ In-kind |
| **Current beneficiary countries:** The Cool Coalition counts 24 country governments and 13 city governments as its direct members, and member activities reach to most countries around the world in promoting efficient and climate friendly cooling. | Targeted regions: ✓ All developing countries |
### Purpose and objectives

The Refrigerant Driving License (RDL) is a globally recognized and acceptable industry qualification program that sets minimum requirements for the proper and safe management of refrigerants in air conditioning, heating, and refrigeration equipment.

The RDL program will eventually lead to upgrading the skills of individual technicians to minimize emissions of refrigerants and safe use of alternatives. It will also assist many countries in offering a credible qualification program where they lack a local one or have challenges in upgrading or enforcing the relevant local competency certification. This should allow significant reduction in consumption of refrigerants and hence support the achievement of the compliance targets of the Montreal Protocol and the Kigali Amendment.

### Governance

The RDL program was developed in response to the needs of Article 5 parties of the Montreal Protocol and within the implementation of the Compliance Assistance Programme (CAP) of UNEP OzonAction as supported by the Multilateral Fund of the Montreal Protocol. In-kind contributions are being provided by the main partner to the project, i.e. AHRI in addition to the supporting partners, which are the key industry associations.

AHRTI and UNEP formed an Advisory Committee that will serve as the technical advising and review body for RDL through its three stages. The Advisory Committee includes in its membership committed participation and support from ABRAVA, ACAIRE, AHRTI, AREA, ASHRAE, EPEE, JRAIA, Refrigerants Australia and The Alliance.

### Key activities

The RDL program considers the needs of a migrating workforce and industry. It also covers management requirements for both flammable and non-flammable refrigerants. The RDL program includes the following activities:

1. Development and building consensus amongst industry associations on the RDL qualification levels, competencies, and skills to be checked by the program. (Completed)
2. Piloting the RDL program in a limited number of countries to test the content, applicability to developing countries and universality. (Ongoing in 6 pilot countries and expected to be completed by 2022)
3. Finalizing the RDL model to allow wider enrollment. (Ongoing and expected to be completed by mid-2022)
4. Launch RDL as an available program for all interested governments, institutes and third-party service providers. (Expected by the end of 2022)

### Current funding

Current funding for this activity (ongoing since 2017) is part of UNEP’s Compliance Assistance Programme budget, approved under the Multilateral Fund for the Implementation of the Montreal Protocol.

### Current beneficiary countries

The RDL is currently being piloted in six countries (Grenada, Maldives, Rwanda, Sri Lanka, Suriname, and Trinidad and Tobago. By the end of the pilot stage, it will be open to all interested countries.
<table>
<thead>
<tr>
<th><strong>Cold Chain Database</strong></th>
<th><strong>Website:</strong></th>
<th><a href="https://www.unep.org/ozonaction/">https://www.unep.org/ozonaction/</a> &amp; <a href="http://www.foodcoldchain.org/">http://www.foodcoldchain.org/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose and objectives</strong></td>
<td><strong>Type of organization:</strong></td>
<td>International organization &amp; NGO</td>
</tr>
</tbody>
</table>
| The Cold Chain Database is a model to quantify stocks, understand gaps and project scenarios of the cold chain applications at different cold chain processes through a comprehensive assessment methodology and a thorough data collection approach that captures information about technologies, refrigerants, food loss, energy, economics, and operation practices. The Cold Chain Database supports countries in relation to their implementation of the Montreal Protocol through the development of HCFC phase-out management plans (HPMPs) and Kigali Implementation Plans (KIPs). It also supports Montreal Protocol implementation by providing useful outputs for sector analysis, market scenarios, stakeholder consultations, and the development of policies and regulations. In addition, the Database links sectoral analysis to other important considerations, including energy consumption by cold chain sectors and quantification of food loss resulting from cold chain operations. | **Activity type:** | ✓ Technical assistance  
✓ Research and analysis |
| **Governance** | **Primary cooling objective:** | ✓ Refrigerant/HFC phase-down  
✓ Access to cooling |
| The Database is being developed in cooperation and support of GFCCC and is currently being piloted within the context of Multilateral Fund projects in six countries. It is being potentially considered for similar cold chain activities under other relevant initiatives. | **Secondary cooling objective:** | ✓ Reducing energy consumption from cooling  
✓ Refrigerant life-cycle management |
| **Key activities** | **Sector(s) addressed:** | ✓ Commercial refrigeration  
✓ Industrial refrigeration  
✓ Transport (mobile) refrigeration |
| As a first step, the Database intends to take stock of cooling equipment in different parts of cold chain sectors, as well as assess energy usage and related CO₂ emissions, refrigerant usage and related CO₂ equivalent, and levels of food loss linked to a lack of refrigerated food cold chain (RFCC). A longer-term output of the Database is to assess future scenarios with different levels of improvements to RFCC (e.g. minimum, medium, maximum improvement levels), as well as assess for each scenario the required investments, potential benefits (e.g. GHG reductions, financial value of food saved) and potential impacts (e.g. extra energy use or CO₂ emissions). | **Current funding:** | The funding allocated is sourced from participating countries' projects under the Multilateral Fund and varies in terms of costing depending on size of the country and volume of the consuming sectors. |
| The methodology and supporting questionnaires are launched and available to use by interested countries/partners at no cost. The final database analyser is under development and will be released by the end of the pilot stage (mid-2022). | **Type of funding:** | ✓ Grant funding  
✓ In-kind |
<p>| <strong>Current beneficiary countries:</strong> Bahrain, Bosnia and Herzegovina, North Macedonia, Maldives, Paraguay, Senegal. | <strong>Targeted regions:</strong> | ✓ All developing countries |</p>
<table>
<thead>
<tr>
<th><strong>HFC Outlook Model</strong></th>
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<tbody>
<tr>
<td><strong>Lead organization:</strong> UNEP OzonAction &amp; The European Partnership for Energy and the Environment (EPEE)</td>
<td><strong>Website:</strong> <a href="https://www.unep.org/ozonaction/">https://www.unep.org/ozonaction/</a> &amp; <a href="https://www.epeeglobal.org/">https://www.epeeglobal.org/</a></td>
</tr>
<tr>
<td><strong>Purpose and objectives</strong></td>
<td><strong>Type of organization:</strong> International organization, NGO</td>
</tr>
<tr>
<td>The HFC Outlook Model is a tool that will help the National Ozone Units (NOUs) quantify the current and projected future uses of HFCs and alternatives, and better understand the implications of different HFC reduction scenarios. It will also help the NOUs make informed decisions about general and sector-specific trends and technology options which enables the policy-making process and regulatory options to be based on a solid structured analysis of country needs and national circumstances.</td>
<td><strong>Activity type:</strong> ✓ Technical assistance ✓ Research and analysis</td>
</tr>
<tr>
<td>The HFC Outlook Model supports countries in relation to the implementation of the Montreal Protocol, including through: - Development of HCFCs Phaseout Plans (HPMPs) or Kigali Implementation Plans (KIPs) - Sector Analysis, Market Scenarios and Stakeholders consultation - HCFCs/HFCs Policies and Regulation development - Servicing Sector analysis and potentials - Direct and in-direct emissions-related analysis</td>
<td><strong>Primary cooling objective:</strong> ✓ Refrigerant/HFC phase-down</td>
</tr>
<tr>
<td><strong>Governance</strong></td>
<td><strong>Secondary cooling objective:</strong> ✓ Reducing energy consumption from cooling ✓ Refrigerant life-cycle management</td>
</tr>
<tr>
<td>HFC Outlook is an EPEE – UNEP OzonAction joint product.</td>
<td><strong>Sector(s) addressed:</strong> ✓ Domestic refrigeration ✓ Commercial refrigeration ✓ Industrial refrigeration ✓ Transport (mobile) refrigeration ✓ Domestic AC ✓ Commercial AC ✓ Mobile AC</td>
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<tr>
<td><strong>Key activities</strong></td>
<td></td>
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<tr>
<td>The HFC Outlook Model provides a detailed analysis of historical and projected future use of HCFCs, HFCs and the lower GWP alternatives that can be used to achieve HFC phasedown. Forecasts are made using a range of different “compliance scenarios” that reflect the types of measures that can be used to reduce HFC usage. It is developed and tailored to the need of each individual country, based on their request, to assist in the design and implementation of the Montreal Protocol phase-out and phase-down projects as supported by the Multilateral Fund of the Montreal Protocol.</td>
<td><strong>Current funding:</strong> Current funding for this activity (ongoing since 2017) is sourced from participating countries’ projects under the Multilateral Fund for the Implementation of the Montreal Protocol, and varies in terms of costing depending on the size of the country and volume of the consuming countries. <strong>Type of funding:</strong> ✓ Grant funding</td>
</tr>
<tr>
<td>The steps involved in building the country-specific model include a collection of in-country macro-economic data, reported HCFC/HFC consumption, technology data and market data; development of the country model; training and support, including multi-lingual capability; and ongoing updates to the input data.</td>
<td><strong>Current beneficiary countries:</strong> Over the period 2017-2021, the model was built and tested in ten (10) pilot countries (Bahrain, Bosnia &amp; Herzegovina, Dominican Republic, Gabon, Guatemala, Honduras, Kuwait, Mali, Senegal, and Sri Lanka). Today, the model is open to all interested countries to request, but it is not an off-the-shelf product and needs to be tailored in accordance with country data and details. <strong>Targeted regions:</strong> ✓ All developing countries</td>
</tr>
</tbody>
</table>
### Purpose and objectives

U4E is a global effort supporting developing countries and emerging economies to move their markets to energy-efficient appliances and equipment. Under the leadership of the United Nations Environment Programme (UNEP), U4E brings together all key stakeholders active in the area of product efficiency, in order to:

- Inform policymakers of the potential environmental, financial and economic savings of a transition to high-efficiency products;
- Identify and promote global best practices in transforming markets;
- Offer tailored assistance to governments to develop and implement national and regional strategies and projects to achieve a fast and sustainable market transformation.

With respect to cooling in particular, U4E promotes sustainable cooling in developing countries through a range of activities, including capacity-building technology workshops, the development of tools and technical resources, and various programmes to promote the adoption of energy-efficient appliances.

### Governance

While administered by UNEP, U4E is a public-private partnership bringing together various international organizations, initiatives and major equipment manufacturers. In addition to UNEP, the founding partners of U4E are CLASP, the Global Efficient Lighting Centre, the International Copper Association, the National Resources Defense Council, and the United Nations Development Programme.

### Key activities

Among the activities implemented by U4E in the cooling sector are the following:

- Development of Model Regulation Guidelines for Refrigerating Appliances and Air Conditioners to support countries to establish impactful energy-efficiency regulations considering GWP levels and soon-to-be-released Model Regulations Guidelines for Commercial Refrigeration.
- Promotion of sustainable cooling in workshops and conferences at major regional and international events, leading sessions at Conferences of Parties and other forums.
- Build global capacity at the "Twinning" workshops in partnership with UNEP’s OzonAction for senior energy and environment officials from nearly 130 countries on sustainable cooling solutions.
- Development and/or promotion of capacity-building tools, such as Guidance to set a Product Registration System, OzonAction, ASHRAE’s Energy Efficiency Literacy Course, and the aforementioned Model Regulations.
- Updating Country Savings Assessments (CSA) for 150 countries that illustrate the impacts of adopting the Model Regulations for Domestic Refrigerators, Air Conditioners and Commercial Refrigeration at the minimum, medium and high-efficiency grade.
- Providing key contributions to publications such as the annual Cooling for All by SEforALL.

In addition, under its Global Programme on Eco-Efficient Cooling Appliances, U4E has provided policy support, training, and information resources to promote the adoption of energy-efficient cooling appliances and helped develop Technology Procurement Programme Support with national governmental and regional entities in India and the African continent (see separate entry on the Africa Centre of Excellence for Sustainable Cooling and Cold Chain (ACES)).

U4E is also contributing to Market Transformation Programmes in many developing countries, in partnership with other institutions such as the Global Environment Facility, the Clean Cooling Collaborative and the Green Climate Fund to facilitate the adoption of sustainable cooling appliances.

### Current funding

Current beneficiary countries: Ghana, Senegal, Rwanda, Nigeria, Dominican Republic, Jamaica, Bahamas, St. Lucia, Barbados, Costa Rica, Chile, Brazil, Honduras, Cuba, El Salvador, Indonesia, India, Sudan, Lao PDR, Kazakhstan, SADC, EAC, ASEAN.

<table>
<thead>
<tr>
<th>Targeted regions:</th>
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</thead>
<tbody>
<tr>
<td>✓ Global</td>
</tr>
<tr>
<td>✓ Eastern Africa</td>
</tr>
<tr>
<td>✓ Southern Africa</td>
</tr>
<tr>
<td>✓ Western Africa</td>
</tr>
<tr>
<td>✓ Latin America and the Caribbean</td>
</tr>
<tr>
<td>✓ Southeastern Asia</td>
</tr>
</tbody>
</table>
The Africa Centre of Excellence for Sustainable Cooling and Cold Chain (ACES)

Lead organization: UNEP United for Efficiency (U4E)

Website: https://rema.gov.rw/index.php?id=121

Purpose and objectives

The Africa Centre of Excellence for Sustainable Cooling and Cold Chain (ACES) is working to develop and accelerate the uptake of sustainable cold chain solutions in the agriculture and health sectors throughout Africa. It aims to economically empower farmers, increase export revenues, enhance job creation in rural areas, mitigate climate and environmental impacts, and foster low-carbon development.

Governance

ACES was established in 2020 by the Governments of Rwanda and the United Kingdom (UK), the United Nations Environment Programme’s U4E initiative, the Centre for Sustainable Cooling, and the University of Rwanda (UR).

Key activities

ACES is executed in the following four phases:

1. Phase I (Q3 2020 – Q2 2021) includes a Cooling Needs Assessment that, along with other existing studies, provides the foundational underpinning and design concept of the Centre. It is concluded with the Primary Research Report and Synthesis Report finalized.
2. Phase II (2021) entails the full design, technology definition, and staffing definition, hiring of key staff, and full design and technology definition of one initial Living Laboratory as a demonstration location in a showcase community in Rwanda.
3. Phase III (2022) includes full staff recruitment, purchase and installation of equipment, and commissioning of the Centre, followed by that of the initial Living Laboratory in Rwanda.
4. Phase IV (2023 onwards) will scale up to pan-African Living Laboratories with demonstrations of ACES solutions in communities in numerous countries, demonstrating new technologies and business models and feeding lessons learned back to the Centre in Kigali. In the meanwhile, the hub in Kigali will train trainers from throughout Africa, enhancing the expertise of academics, technicians and practitioners, and supporting educational opportunities for university students and other stakeholders by engaging them in research and development projects.

Current funding: US $6 million over the period 2020-2023

Targeted regions: Eastern Africa
**Energy Efficient Lighting and Appliances (EELA) Project**

**Lead organization:** UNIDO

**Website:** [https://www.eacreee.org/project/energy-efficient-lighting-and-appliances-eela-project-southern-and-eastern-africa](https://www.eacreee.org/project/energy-efficient-lighting-and-appliances-eela-project-southern-and-eastern-africa)

**Purpose and objectives**
The purpose of the EELA project is to support the development of vibrant markets for energy-efficient lighting and appliances across East and Southern Africa. Efficient electricity use in homes, businesses and public facilities in these growing regions is one of the fastest and cheapest ways of accelerating sustainable development. The project aims to promote consumer choice in the lighting and appliances market, support stronger policies and regulations to address a range of related issues, and provide incentives to encourage the private sector to offer energy efficient products and services. EELA contributes to the Montreal Protocol and Kigali Amendment by promoting energy-efficiency policies in refrigeration and air conditioning equipment.

**Governance**
The project is implemented by the United Nations Industrial Development Organization (UNIDO) and executed with support from the East African Centre of Excellence for Renewable Energy and Efficiency (EACREEE) and the Southern African Development Community Centre for Renewable Energy and Energy Efficiency (SACREEE). Technical support is provided by the Swedish Energy Agency (SEA) and CLASP. The project is funded by the Swedish International Development Corporation (Sida).

**Key activities**
Over five years (2019–2024), the EELA project will implement a broad range of activities on energy-efficient lighting and appliances in four key areas across the 21 Member countries of the Southern African Development Community (SADC) and the East African Community (EAC):

- **Market incentives** will be put in place to stimulate the uptake of energy-efficient lighting and appliances. The project will offer supply chain actors technical assistance and financial incentives to deliver efficient and high-quality energy services.

- **Policies and regulations** for energy-efficient lighting and appliances will be improved through the project, with an eye on making them gender- and climate-responsive. This will involve developing a regional framework for lighting and harmonised Minimum Energy Performance Standards (MEPS) for various product groups. It will also involve addressing environmental issues such as the safe end-of-life disposal of lighting and appliances, including disassembly and recycling.

- **Building the capacity** of governments, standards-setting and accreditation bodies, as well as testing facilities and the private sector will also be an important part of the programme through workshops, webinars and other events. A network for sharing knowledge within the regions will be established. In particular, the project will offer testing centres support with equipment and capacity building.

- **Raising awareness** about the benefits of efficient technologies amongst market players, policymakers and consumers will be critical. Through the project, public information campaigns using TV, radio, social channels and outreach events will promote the multiple benefits of switching towards energy-efficient lights and appliances, addressing women and men equally.

**Current funding:** USD 6,000,000 over the period 2019-2024

**Type of funding:** Grant funding

**Current beneficiary countries:** 21 Member countries of the Southern African Development Community (SADC) and the East African Community (EAC)

**Targeted regions:**
- Eastern Africa
- Southern Africa
### Operationalizing Energy Efficiency and HFC Phase-down Synergies

**Lead organization:** World Bank  
**Website:** n/a

<table>
<thead>
<tr>
<th>Purpose and objectives</th>
<th>Website: n/a</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Operationalizing Energy Efficiency and HFC Phase-down Synergies program supports analytical work on operational aspects of combining HFC phase-down and energy efficiency improvements in cooling equipment in the context of World Bank operations, thereby generating and disseminating knowledge and technical assistance products, which will facilitate energy efficiency financing to complement global efforts to phase down HFCs in the cooling sectors. The program improves financing of and access to efficient and low GHG cooling solutions in the context of World Bank operations, thereby avoiding the build-up of HCFC/HFC banks. The program's outputs will be disseminated to inform projects that involve cooling in many developing countries.</td>
<td></td>
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**Governance**  
This program is externally funded by the UK Government (Defra). The program supports World Bank activities in several developing countries and follows World Bank operational guidelines.

**Key activities**  
The program supports current World Bank operations in the areas of aquaculture and seafood cold chains, refrigerated transport, building codes and MEPS, and energy efficiency financing.

<table>
<thead>
<tr>
<th>Current funding:</th>
<th>Type of funding:</th>
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<tbody>
<tr>
<td>&lt;US$ 1 million per year (2020-2022)</td>
<td>Grant Funding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary cooling objective:</th>
<th>Type of organization:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing energy consumption from cooling</td>
<td>International organization</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary cooling objective:</th>
<th>Activity type:</th>
</tr>
</thead>
</table>
| Access to cooling | ✓ Capacity-building  
| Refrigerant/HFC phase-down | ✓ Technical assistance  
| Refrigerant life-cycle management | ✓ Research and analysis  
| | ✓ Advocacy and awareness-building |

<table>
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<tr>
<th>Sector(s) addressed:</th>
<th></th>
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</table>
| Commercial refrigeration, | ✓ Commercial refrigeration  
| Transport (mobile) refrigeration | ✓ Domestic AC  
| Domestic AC | ✓ Commercial AC  
| Financing | ✓ Financing  

<table>
<thead>
<tr>
<th>Current beneficiary countries: Pakistan, India, Costa Rica, El Salvador, Dominican Republic</th>
<th>Targeted regions:</th>
</tr>
</thead>
</table>
| | Global  
| | All developing countries |
### Efficient, Clean Cooling program

**Lead organization:** ESMAP/World Bank

**Website:** [https://esmap.org/efficient_and_clean_cooling](https://esmap.org/efficient_and_clean_cooling)

**Type of organization:** International organization

**Activity type:**
- Capacity-building
- Technical assistance
- Advisory
- Research and analysis
- Advocacy and awareness-building
- Financing mobilization

**Primary cooling objective:**
- Access to affordable cooling
- Deploying reliable and climate friendly cooling solutions

**Secondary cooling objective:**
- Commercial refrigeration
- Vaccine cold chain
- Domestic AC
- Commercial AC
- Passive solutions (mitigation of urban heat island effect)
- Energy efficient buildings
- Refrigerant/HFC phase-down
- Financing

**Sector(s) addressed:**
- Commercial refrigeration
- Vaccine cold chain
- Domestic AC
- Commercial AC
- Passive solutions (mitigation of urban heat island effect)
- Energy efficient buildings
- Refrigerant/HFC phase-down
- Financing

**Type of funding:**
- Grant Funding

**Targeted regions:**
- Global
- All developing countries

### Purpose and objectives
To develop a new cooling business line by leveraging relevant World Bank operations across sectors to the mainstream deployment of efficient, clean cooling solutions packages and help build a foundation for sustainable cooling transformation.

### Governance
ESMAP is a global technical assistance program housed within the World Bank. ESMAP is governed by a Consultative Group comprising of representatives from contributing donors (currently 22) and chaired by the Global Director of the World Bank’s Energy and Extractives Global Practice.

### Key activities
Under the ESMAP FY 2021-2024 Business Plan, the Efficient, Clean Cooling program has four key functions: (i) think tank and partnerships; (ii) pipeline development; (iii) awareness-raising; and (iv) mobilizing financing. The Efficient, Clean Cooling program has a cross-sectoral approach. Key activities so far include (a) development of knowledge products; (b) Supporting a portfolio of 28 activities across 26 countries (and different sectors) through advisory support and grant support across sectors (energy, urban, health, agriculture, fisheries) in both grid and off-grid contexts (ESMAP cooling program dedicated significant efforts and resources since the pandemic on supporting countries’ COVID-19 responses with reliable and climate-friendly cold chains), as well as building a growing pipeline across sectors and regions; (c) leading the development of a multi-country (9 countries), multi-sector (buildings/energy, health and agriculture) Cooling Facility, which was approved by the Green Climate Fund in October 2021 (mobilizing $157 of climate finance) to co-finance WB operations; as well as collaborations with key external stakeholders,

### Current funding:
>US$ 15 million (over business plan FY21-24)

### Current beneficiary countries:
Majority of grant funding to support technical assistance activities are Bank-executed, although some of the grants support investments in efficient clean cooling equipment and are client-executed. ESMAP’s Efficient Clean Cooling portfolio currently includes Bangladesh; China; Nigeria; Malawi; Panama; Mexico; Costa Rica; El Salvador; Sri Lanka; Egypt; Jordan; Morocco; the Gambia; Rwanda; Argentina; India; Comoros; Ethiopia; South Sudan; Sudan; Zimbabwe; Somalia; Niger; Pakistan; Guatemala; Sao Tome and Principe.

Informing over $2 billion of World Bank financing

**Mobilized:** $157 million from Green Climate Fund.
Inventory of international cooling programmes and initiatives

The Climate and Clean Air Coalition (CCAC)'s Workstream on Complementing the implementation of the Kigali Amendment is mandated to develop an inventory of international cooling programmes and initiatives for a clear picture of the global cooling landscape. Many activities are being implemented globally, bilaterally, multilaterally or regionally, by various organizations through different coalitions, projects, programmes and initiatives. This informational tool will promote exchange, transparency and efficiency among those engaged in the cooling sector, with a view to avoiding duplication and identifying potential gaps for future work in this area.

Please help us create this inventory by filling out the following survey by September 30, 2021. Please note:

- This inventory seeks to include all international cooling programmes and initiatives, meaning all coordinated efforts related to the refrigeration, air-conditioning and heat pump (RACHP) sector, including passive and nature-based cooling solutions, that operate in more than one country. Any multilateral, regional or bilateral programme or initiative addressing refrigerants, energy use from cooling, or access to cooling should be included. (The indicative list compiled at https://bit.ly/37aafut can help illustrate the types of programmes/initiatives this inventory seeks to cover.)

- Your organization may have more than one international cooling programme or initiative, and we ask that you please consult internally and provide one survey response on behalf of your organization per distinct programme/initiative at its highest level. Please do not provide separate responses at the sub-programme/initiative, project or activity level.

- The CCAC intends to include survey responses as written in the inventory and to share this inventory with CCAC members and partners. We will inform survey respondents when the inventory is published.

If you have any questions, please feel free to contact the CCAC Secretariat: secretariat@ccacoalition.org

Thank you!

* Mandatory

Name of international cooling programme or initiative *
(Enter your text here)

Contact email address of the person or organization submitting this survey response *
(Enter your text here)

Organization & governance

Name of lead organization *
(Enter your text here)

Type of organization (select one) *

Website URL for programme/initiative or lead organization
(Enter your text here)

Please indicate any relevant partner organizations and/or briefly describe key governance elements of the programme/initiative, as applicable (max. 250 words)
(Enter your text here)

Funding
Please indicate the total funding currently dedicated to the programme/initiative, specifying the currency (e.g. US$ 1 million)
(Enter your text here)

Please indicate the time period for which the above funding is allocated, specifying the start and end years (e.g. 2020-2025). (Note: this period may differ from the lifetime of the programme/initiative, which might have started before the current funding period and might continue after the end of the current funding period.)
(Enter your text here)

Range of funding (select one) *
☐ <US$ 1 million per year
☐ US$ 1-5 million per year
☐ US$ 5-20 million per year
☐ US$ 20-50 million per year
☐ US$ 50-200 million per year
☐ >US$ 200 million per year

Type of funding (select all that apply)
☐ Grant funding
☐ Non-grant funding (finance, loans, etc.)
☐ In-kind
Brief description of programme/initiative & activities

Please describe the programme/initiative, including its objectives, main activities, expected or actual results and potential co-benefits (max. 500 words) *

(Enter your text here)

Activity type (select all that apply) *
- Manufacturer conversions
- End-user conversions
- Capacity-building (including training-related activities)
- Technical assistance (including support for the development of legislation, policies, regulations and standards)
- Research and analysis
- Advocacy and awareness-raising
- Political/high-level outreach
- Other: (Enter your text here)

Primary cooling objective(s) (select all that apply) *
- Refrigerant/HFC phase-down
- Reducing energy consumption from cooling (including maintaining/enhancing energy efficiency of equipment and/or improving cooling efficiency of buildings)
- Access to cooling
- Refrigerant life-cycle management (including collection, recycling, disposal and destruction)

Secondary cooling objective(s) (select all that apply)
- Refrigerant/HFC phase-down
- Reducing energy consumption from cooling (including maintaining/enhancing energy efficiency of equipment and/or improving cooling efficiency of buildings)
- Access to cooling
- Refrigerant life-cycle management (including collection, recycling, disposal and destruction)

Sector(s) addressed (select all that apply) *
- Domestic refrigeration
- Commercial refrigeration
- Industrial refrigeration
- Transport (mobile) refrigeration
- Domestic AC (including reversible heat pumps)
- Commercial AC (including reversible heat pumps)
- Mobile AC
- Other: (Enter your text here)
How does the programme/initiative support the implementation of the Montreal Protocol and its Kigali Amendment? (max. 250 words)

(Enter your text here)

Beneficiaries
Please list the programme/initiative’s current beneficiary countries and/or describe any geographic focus *

(Enter your text here)

Targeted regions (select all that apply) *
- Global
- All developing countries
- All Africa
- Northern Africa
- Eastern Africa
- Middle Africa
- Southern Africa
- Western Africa
- All Americas
- Latin America and the Caribbean
- Northern America
- All Asia
- Central Asia
- Eastern Asia
- Southeastern Asia
- Western Asia
- Europe
- Eastern Europe
- Northern Europe
- Southern Europe
Help us build a comprehensive inventory of international cooling programmes and initiatives

Are you aware of any other cooling programme/initiative that is not listed in here: https://bit.ly/37aafut? If yes, please indicate the name of the programme/initiative, the name of the lead organization and, if possible, relevant contact information. This will help us obtain additional answers to this questionnaire.

(Enter your text here)