

Detailed Case study information

HFC phasedown

Description	The GIZ project “Cool Contributions fighting Climate Change (C4)” was funded by the German Federal Ministry for the Environment (BMUV) under the International Climate Initiative (IKI). It was implemented by GIZ Proklima in partnership with national governments, institutions, and international stakeholders. The project was designed to address a critical gap in climate action, namely the limited integration of the refrigeration and air conditioning (RAC) sector into national climate strategies and Nationally Determined Contributions (NDCs). C4 was implemented across several partner countries, initially including Costa Rica, Grenada, the Philippines, Iran, and Vietnam, and later expanding to Nigeria and Liberia. Its overall objective was to support countries in reducing both direct emissions from refrigerants such as hydrofluorocarbons (HFCs) and indirect emissions from energy consumption. The project promoted a holistic “Green Cooling” approach that combines energy efficiency, the use of natural refrigerants, and lifecycle-based thinking. In addition, C4 strengthened alignment between the Paris Agreement and the Kigali Amendment, while fostering coordination between climate, energy, and ozone policy frameworks. Through its integrated model, the project supported countries in developing strategies, building institutional capacity, and implementing practical solutions for sustainable cooling.
Achievements	Over the course of its implementation, the C4 project achieved significant progress in integrating cooling into national climate agendas. It supported partner countries in developing and updating RAC-specific greenhouse gas inventories using internationally recognized methodologies. These inventories provided the evidence base required for informed policy decisions and climate planning. The project also facilitated the development of National Cooling Action Plans (NCAPs) and sector-specific mitigation strategies, such as a dedicated room air conditioning strategy in the Philippines and a comprehensive NCAP in Grenada. Cooling measures were successfully integrated into national NDCs and are being further strengthened as part of ongoing NDC 3.0 updates. C4 demonstrated the technical feasibility of climate-friendly cooling solutions by supporting the installation of more than 140 propane-based (R-290) air conditioning systems in pilot buildings. These demonstrations were complemented by targeted capacity-building efforts, including the training of more than 210 technicians, trainers, and instructors. The project also promoted gender inclusion by increasing the participation and visibility of women in the RAC sector. In addition, C4 developed global knowledge products and tools such as the NDC Helpdesk, benchmarking instruments, and the Green Cooling Finance Platform. It introduced innovative financing and procurement approaches, supported policy reforms including energy efficiency standards and labeling, and enabled extensive international knowledge exchange through webinars, study tours, and regional cooperation platforms.
Benefits	The project has delivered substantial benefits at both national and global levels. It significantly improved the availability of data and strengthened emissions tracking and transparency in the cooling sector. This has enabled countries to make evidence-based policy decisions and increase their climate ambition. C4 also contributed to the accelerated adoption of low-global-warming-potential and energy-efficient cooling technologies, thereby reducing greenhouse gas emissions and environmental impacts over the long term. At the same time, these technologies have helped lower lifecycle costs through reduced energy consumption.

	Furthermore, the project strengthened technical capacity and workforce skills, ensuring that countries are better equipped to install, operate, and maintain modern cooling systems. It also improved access to climate finance by supporting the development of financing mechanisms and engaging financial institutions. Beyond climate mitigation, the project delivered broader co-benefits. These include improved energy security, reduced peak electricity demand, enhanced food security through better cold chains, and increased resilience to heat and climate impacts. Importantly, C4 also contributed to gender equality by supporting inclusive workforce development in a traditionally male-dominated sector.
Next steps	The C4 project, which began in 2016 and continued into a second phase until 2025, has laid a strong foundation by equipping countries with the tools, data, and capacities to integrate cooling into climate policy. The next priority is to scale up implementation by embedding concrete cooling targets and measures into NDC 3.0 updates. This includes strengthening national systems, mobilizing financing, and expanding the adoption of Green Cooling technologies across key sectors. Future efforts should also align Kigali and Paris commitments, integrate cooling into adaptation strategies, and ensure an inclusive transition.
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