

HCFC Phase-Out Management Plan

Ozone- and climate-friendly refrigeration and air-conditioning

Challenge

Rising temperatures, urbanisation and economic growth lead to an increasing demand for cooling, especially in emerging and developing countries. Most of the old refrigerators and air-conditioners still use refrigerants consisting of ozone-depleting substances (ODS) such as hydrochlorofluorocarbons (HCFCs) with a very high global warming potential (GWP). These gases are released during the manufacture, installation, maintenance and disposal of cooling appliances. If we want to limit global warming to less than two degrees by 2050, this development needs to be stopped.

Objective

In 1987, the international community agreed on the Montreal Protocol for the regulation of ozone-depleting substances such as hydrochlorofluorocarbons (HCFC). On behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), Proklima supports emerging and developing countries in Africa, Asia and Latin America in implementing their HCFC phase-out. An integrated phase-out management plan including the use of natural refrigerants and more energy-efficient appliances will make a significant contribution to climate and ozone protection.



Activities

The activities include policy advice on the conversion to climate-friendly and energy-efficient refrigeration and air-conditioning (RAC) technologies, the implementation of technology transfer and the training of various stakeholders involved in the cooling sector.

Legal, institutional and regulatory measures:

Cooperation with and advice to local decision makers to strengthen measures supporting the switch to natural refrigerants.

Capacity building:

Trainings on the safe handling of natural refrigerants, the correct installation, maintenance and repair of RAC systems for technicians and trainers; Trainings on control measures of ozone depleting-substances for customs and law enforcement officers, standards entities and regulation authorities.

Supporting existing training institutes:

RAC trainers are trained in the safe handling of natural refrigerants in order to serve as knowledge multipliers. Training institutes receive necessary tools and equipment for their courses such as air-conditioners or refrigerators based on natural refrigerants.

Technology transfer:

Replacement of old and inefficient refrigeration appliances.

Recovery and recycling:

Checks are carried out to ensure that the refrigerants are correctly recycled and certain substances are recovered.

Public relations:

Communication activities aim to raise awareness and to strengthen sustainable consumption of energy-efficient, ozone- and climate-friendly refrigerants.

Published by

Achievements

Africa: Kenya

- In Kenya, more than 750 RAC technicians have been trained on the safe handling of natural refrigerants. Over 150 customs officers were informed on control measures of ozone depleting substances. The 'train the trainer' approach was conducted to multiply the impact.
- Training institutes, environmental and tax authorities were equipped with appropriate technologies, such as control systems for detection of incorrect labelling.
- Law enforcement agencies have been supported in their work, as the enforcement and monitoring of licences are the main challenges in the country.

Latin America: Brazil

- In Brazil, 69 trainers have been qualified. In turn, they have trained 4,900 RAC technicians nationwide.
- Comprehensive training materials and best practice guidelines were published, and the training institutes have been equipped with tools and demonstration plants.
- Three demonstration projects with supermarkets were implemented and measures were taken to improve system leak tightness and energy efficiency.
- A monitoring tool for better control of the refrigerant consumption and regular maintenance activities was transferred to the Brazilian context and is available online.
- The project also contributes to the creation of technical standards within the Brazilian National Standards Organization (ABNT) and provides extensive public relations.
- In a second phase, more than 9,000 refrigeration engineers will be trained nationwide.

Asia: India

- Local training centres were equipped with tools to carry out technical workshops for technicians. This was complemented by 'train the trainer' activities.
- A total of almost 11,300 Indian RAC technicians were trained.
- The curricula were adapted for classes in public and private training institutes and for governmental institutions (e.g. army, railway).
- In a second stage, 62 trainers have already been taught through 'train the trainer' programmes. The aim of the second stage is to qualify a total of 17,000 technicians.

Title Ozone Fund (German ozone protection advisory and investment fund)

Country Brazil, China, Colombia, Egypt, India, Iran, Kenya (co-financing France), Lesotho, Liberia, Mauritius, Mexico, Namibia, Papua New Guinea, Seychelles, Zimbabwe

Sector Refrigeration, air-conditioning and foam (RAC&F)

Objective Supporting partner countries in meeting their obligations under the Montreal Protocol by integrated HCFC phase-out management plans including the use of natural refrigerants and energy-efficient RAC appliances

Target Group National departments of climate and ozone protection, relevant international initiatives and alliances in the F-gas discussions, multilateral implementing agencies, training institutes, industrial associations, and technology suppliers

Implementing Partner Organization GIZ, environmental ministries and national ozone units in selected partner countries

Project Approval March 1998

Project Duration Until 2026

Project Budget EUR 78,024,716

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and Development