



Co-funded by
the European Union



Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Introducing Green Cooling in West and Central Africa Experiences by the ROCA project

MOP36 side event, Bangkok Thailand, 30 October 2024

Agenda

Welcome Remarks

Cornelius Rhein, European Commission

Best practices for capacity building and pilot projects

Nils Hansen, GIZ Proklima / ROCA

Country experiences

Bêma Roland Sanou, NOU Burkina Faso

Hyacinth Mboh, NOU Cameroon

Baba Dramé, NOU Senegal

Questions & Answers to panel

All speakers

Conclusion and Closing Remarks

Guntram Glasbrenner, GIZ Proklima



Co-funded by
the European Union



Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Cornelius Rhein

European Commission



Co-funded by
the European Union



Published by

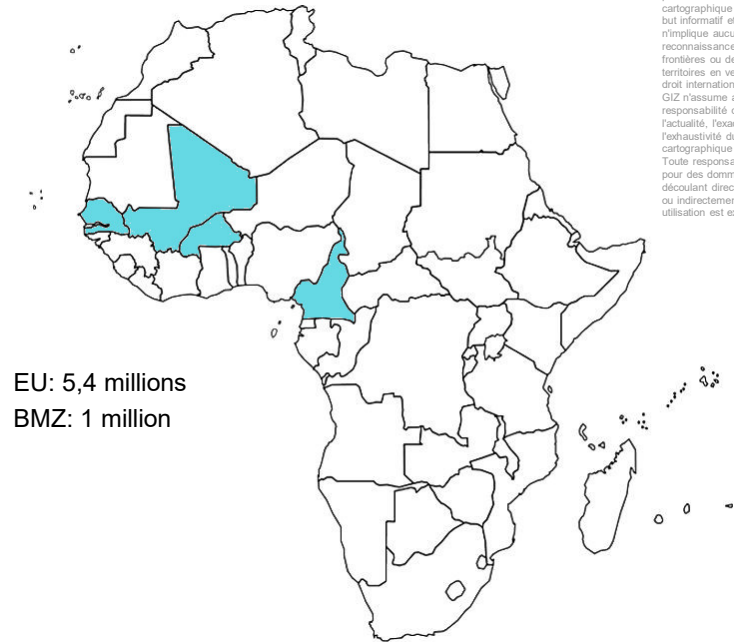
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Nils Hansen

GIZ Proklima / ROCA

Objective ROCA

Overall objective: Reduction of the climate impact of the RAC sector in the partner countries



Avis juridique : Cette présentation cartographique n'a qu'un but informatif et n'implique aucune reconnaissance de frontières ou de territoires en vertu du droit international. La GIZ n'assume aucune responsabilité quant à l'actualité, l'exactitude ou l'exhaustivité du matériel cartographique fourni. Toute responsabilité pour des dommages découlant directement ou indirectement de son utilisation est exclue.

Policy advice

- Inventory reports
- Energy efficiency strategies for the RAC sector
- Advice on green public procurement
- Advice on safety standards for the RAC sector
- Training on negotiation skills
- Reports on end-of-life management



Trainings: online, on site and in Germany



More than 500 trainers and technicians trained



Trainings: Special Trainings in Senegal



RAC skills and entrepreneurship for women technician network

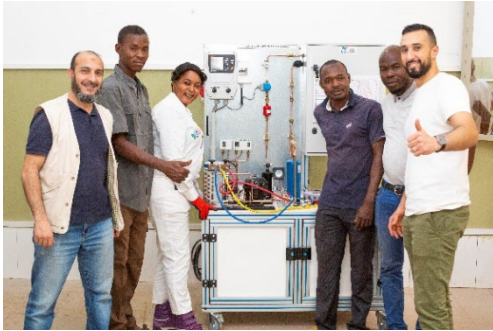


Best practices for informal technicians



Trainings: Equipment

- Equipment for more than 500,000 euros for training centers and RAC associations
- Small adjustments to training facilities in Cameroon and Mali



Trainings: Curricula Development

Fit for Green Cooling

Prêts pour une Réfrigération et une Climatisation Écologiques



Fit for Green Cooling

Prêts pour une Réfrigération et une Climatisation Écologiques



Module J : Pour une utilisation sécurisée des fluides frigorigènes à base d'hydrocarbures

Introduction

Auteur : Rolf Hühren



Module J : Pour une utilisation sécurisée des frigorigènes à base d'hydrocarbures

Chapitre 11 : Tests d'Étanchéité

Auteur : Rolf Hühren



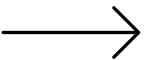
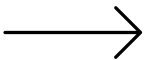
<https://www.green-cooling-initiative.org/green-cooling/fit-for-green-cooling>

Pilot Projects: solar vaccine coolers (Burkina Faso)

- 10 rural health care centres
- 11,000 people profited from vaccinations within the first year after the acquisition



Pilot Projects: cold chain for meat (Burkina Faso)



Pilot Projects: ice machine in Senegal



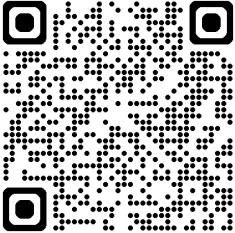
Pilot Projects: equipment for hospital in Cameroon



Pilot Projects: outlook

- Green ACs for all 4 countries
- Cold rooms for agricultural cooperatives in Mali and Senegal

Energy Efficiency Tool



<https://www.green-cooling-initiative.org/ee-tool>

REFRIGERATOR

Step 1 of 3: Energy efficiency and costs of your equipment

Estimate
If you want to know the typical savings of choosing an efficient refrigerator.

Calculate
If you want to know and compare the running costs, the energy consumption, and the emissions of two specific domestic refrigerators.

Please select a country

Burkina Faso

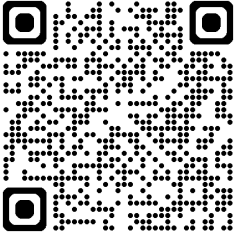
Please select the type of equipment

Refrigerator

Next page

[About](#) [Method](#) [Privacy Policy](#)

Energy Efficiency Tool



<https://www.green-cooling-initiative.org/ee-tool>

← REFRIGERATOR ×

Step 2 of 3: Please choose a volume range from the list below

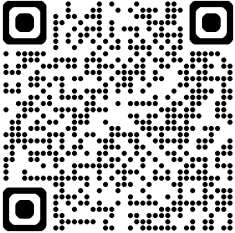
Sum up the volume of all cooling compartments if there are more than one. For example, fridge + freezer space on the case of a refrigerator-freezer.

Medium (200L < 300L) ▼

Estimate

About Method Privacy Policy

Energy Efficiency Tool



<https://www.green-cooling-initiative.org/ee-tool>

Step 3 of 3: Results

The equipment to the left called "Average Unit" has the characteristics of a typical equipment in Burkina Faso and the one to the right called "top-market unit" shows the characteristics of a fridge with very high energy efficiency. These values were obtained from a survey carried out in Burkina Faso in 2021.

average unit	top-market unit
<p>E Extremely low efficiency</p> <p>CFA38,600 cost per year</p> <p>2,883 kgCO₂eq life-time emissions based on 15 years of operation</p>	<p>A Very high efficiency</p> <p>CFA24,900 cost per year</p> <p>1,700 kgCO₂eq life-time emissions based on 15 years of operation</p>
	<p>CFA205,300 15 year savings</p>
<p>200 to 300 L volume</p> <p>313 kWh energy consumption</p> <p>186 kgCO₂eq emissions annually</p>	<p>200 to 300 L volume</p> <p>200 kWh energy consumption</p> <p>113 kgCO₂eq emissions annually</p>



Co-funded by
the European Union



Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Hyacinth Mboh

National Ozone Unit Cameroon

Notes (I)

What were Cameroon's expectations when your country joined the project?

- *We wanted assistance from ROCA/GIZ to enable the country to comply with the Montreal Protocol obligations*
- *Especially interested in leap-frogging to the adoption of green cooling technology proposed by ROCA*
- *Aim:*
 - *total elimination of CFCs (now: 60 percent elimination of HCFCs)*
 - *phase down of HFCs*
 - *adoption of hydrocarbons (HC) as green cooling technology.*
- *We equally wanted to be a pilot country especially for Central Africa or CEMAC regions to help disseminate the good practices to other countries in the subregion.*

Notes (II)

Which was the most important success from your point of view?

- *Training of trainers on green cooling as a way forward for sustainability purposes*
 - *10 Germany and 16 in Cameroon*
- *Training of more than 200 services technicians.*
- *Studies on Energy Efficiency to start the MEPS process.*
- *Supply of equipment such as training benches for R-290 to association and training schools like ENSET in Douala and SIANTOU in Yaoundé.*
- *Supply of equipment (two refrigerators for vaccines and blood banks and one for mortuary operating on R290) to the Gynaeco-obstetric hospitals*
- *Supply of 200 ACs to the Ministry of Environment (MINEPDED) (yet to come).*

Notes (III)

The project will end in March. What do you wish for the future?

We have just started, we don't expect this project to end now, we are hoping for a phase II.

We still have many unfinished business like driving this technology to the industrial and commercial sector as well as developing policy documents.



Co-funded by
the European Union



Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Video: Trainings in Mali

<https://youtu.be/LAIMZpRAEJM>



Co-funded by
the European Union



Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Baba Dramé

National Ozone Unit Sénégal



Co-funded by
the European Union



Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Bêma Roland Sanou

National Ozone Unit Burkina Faso

Notes Burkina Faso (I)

Sustainable Public Procurement Strategy 2023-27

- Sustainability is a key issue for public procurement for two reasons:
 - Effects of the climate crisis
 - Degradation of public buildings and equipment
- **Objective:** To support the development and implementation of a national policy on sustainable public procurement (APD) that integrates social, environmental, and economic considerations into public procurement processes.
- **Implementation:** Encourages contracting authorities to consider sustainable development in their procurement and execution processes, ensuring good governance, efficiency, and proper use of public funds.
- **Price List** (Mercuriale des prix):
 - Establishes reference prices for air conditioners with specific criteria, in line with UEMOA Directive 04 on energy labeling of lamps and household appliances and the Kigali Amendment.
 - It includes criteria for Global Warming Potential (GWP) and Ozone Depletion Potential (ODP) of refrigerants, as well as energy efficiency.

Notes Burkina Faso (II)

Sustainable Public Procurement Strategy 2023-27

- *Technical Specifications for Air Conditioning Equipment – Objectives:*
 - *Eliminate HCFCs and reduce HFCs in public procurement.*
 - *Reduce the state's energy bill.*
 - *Reduce direct and indirect emissions.*
- *Methodology for Development and Adoption*
 - *Working Group and Technical Committee: A technical working group drafts the initial document, which is then reviewed by a technical committee established by ARCOP (Public Procurement Regulatory Authority).*
 - *Committee Composition: Includes representatives from various ministries (energy, commerce), regulatory bodies, professional associations, consumer leagues, and other stakeholders.*
 - *Committee Work: Members worked for a week to develop a draft decree, which was then submitted to a national workshop for validation and approval by the Ministry of Economy.*

Notes Burkina Faso (III)

Sustainable Public Procurement Strategy 2023-27

Content

- **Lifecycle Consideration:** Covers the entire lifecycle of the equipment, from purchase to operation and end-of-life.
- **Energy Efficiency Criteria:** Revised upwards to ensure the acquisition of energy-efficient split air conditioners.
- **Costs and emissions:** Takes into account ozone depletion potential, global warming potential, and operating costs.
- **After-Sales Service:** Includes provisions for after-sales service, installation procedures, and required personnel for service and installation.



Co-funded by
the European Union



Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Questions & Answers



Co-funded by
the European Union



Published by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Guntram Glasbrenner

GIZ Proklima



Co-funded by
the European Union



Published by



Thank you for your attention!

Merci pour votre attention !

ROCA is co-financed by the European Union (EU) and the Federal Ministry for Economic Cooperation and Development (BMZ) of the Republic of Germany.

The content of this presentation is the responsibility of GIZ and the respective speakers and does not necessarily reflect the point of view of the European Union or the Federal Ministry for Economic Cooperation and Development.

Photo sources:
transport cooling: <https://pbx.at/>; all others: giz