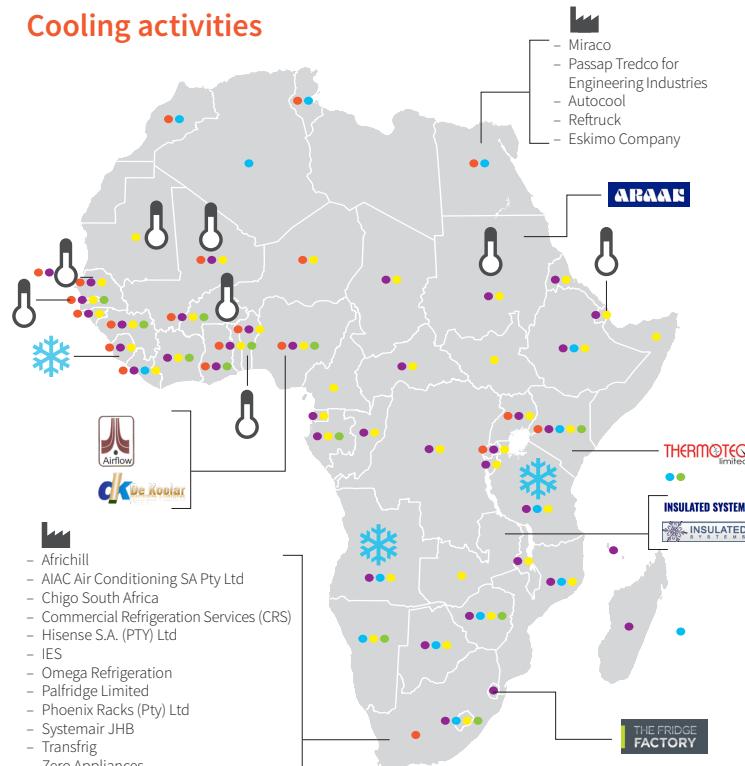


Africa cooling map

KIGALI
COOLING EFFICIENCY PROGRAM

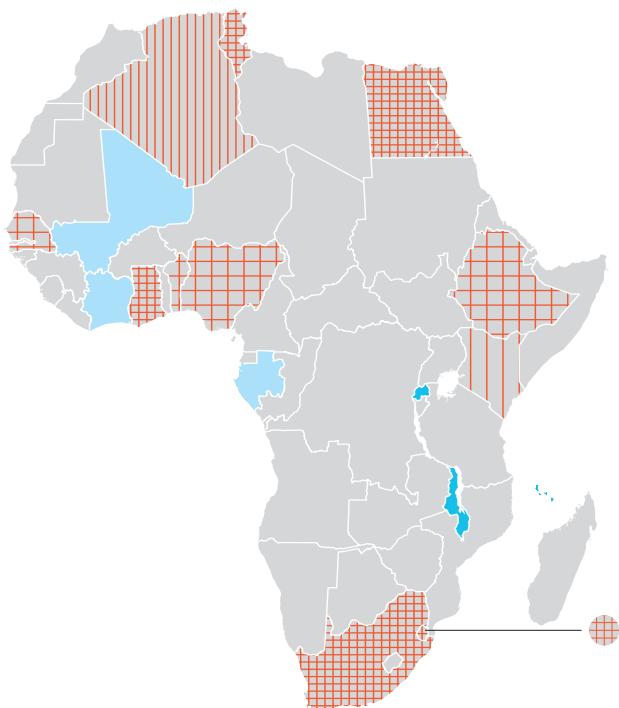
The Africa Cooling Map presents African cooling policies, activities and data related to making cooling more efficient and less polluting across the continent.

Cooling activities



- Location of select cooling projects & programmes (see back page for more details)
- District cooling plants
- Countries in which the average monthly temperature exceeded 28° in 2015
- Location of select refrigerator or AC manufacturing plant

Cooling policies



Top 10 countries with the highest emissions savings potential

Indirect emissions (MtCO ₂) ²	Country	Rank	Country	Direct emissions (MtCO ₂ e) ³
8,0	Algeria	1	Nigeria	11,1
6,6	Nigeria	2	Democratic Republic of the Congo	4,81
3,7	Sudan	3	Ethiopia	4,51
2,7	Uganda	4	Egypt	4,12
1,8	Angola	5	South Africa	3,14
1,7	Tunisia	6	Tanzania	3,01
1,4	Cote d'Ivoire	7	Kenya	2,56
1,3	Kenya	8	Uganda	2,48
1,2	Tanzania	9	Sudan	2,2
1,2	Ghana	10	Algeria	2,12

¹ Minimum Energy Performance Standards (MEPS)

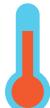
² Indirect emissions data were sourced from United for Efficiency (U4E) country assessments and calculated by summing the avoided CO₂ emissions of air conditioners and refrigerators. Indirect emissions can be understood as those deriving from the consumption of purchased electricity, heat or steam.

³ Direct emissions data was sourced from the Green Cooling Initiative's country assessment. Direct emissions can be understood as emissions from sources that are owned or controlled by the reporting entity. These include, for example, fluorinated gases (F-gases), which have been introduced as substitutes for ODS in many cooling appliances.

- Kigali Amendment ratified
- Kigali Amendment accepted
- MEPS¹ for refrigerators planned/under development
- MEPS for refrigerators implemented
- MEPS for ACs planned/under development
- MEPS for ACs implemented
- MEPS for ACs and refrigerators planned/under development
- MEPS for ACs and refrigerators implemented

Heat waves and extreme temperatures

- Near surface temperatures have increased by 0.5°C or more during the last 50 to 100 years over most of Africa
- Minimum temperatures are rising more rapidly than maximum temperatures
- Changes in mean annual temperature exceed 2°C above the late 20th-century baseline over most of the continent already in the mid-21st century
- Duration and frequency of heat waves and warm spells will increase



Sources:

- Emissions saving potential table: Indirect emission savings potential from U4E and direct emission savings potential from Green Cooling Initiative
- Cooling activities: K-CEP, District Energy in Cities Initiative, U4E, UNDP, GIZ, World Bank Climate Change Knowledge Portal (temperature)
- Cooling policies: UN Treaty collection, World Energy Council
- Temperature trends: IPCC Fifth Assessment Report

Africa cooling map

KIGALI
COOLING EFFICIENCY PROGRAM

Countries	Kigali Cooling Efficiency Program (K-CEP)	UN Environment - OzonAction Programme and U4E (UNEP)	HPMP Project (BMZ/GIZ)	Solar Chill project (GEF)	Green Cooling Initiative (GIZ/BMUB)
Algeria					
Angola		●	●	●	
Benin	●	●	●	●	
Botswana		●	●	●	
Burkina Faso	●	●		●	●
Burundi		●		●	
Cabo Verde	●	●			
Cameroon				●	
Central African Republic (CAR)		●		●	
Chad		●		●	
Comoros		●			
Côte d'Ivoire		●		●	●
Democratic Republic of the Congo		●		●	
Djibouti		●		●	
Egypt	●		●		
Equatorial Guinea		●		●	
Eritrea		●		●	
Ethiopia		●	●	●	
Gabon		●		●	●
Gambia	●	●		●	●
Ghana	●	●			●
Guinea	●	●		●	●
Guinea-Bissau	●	●		●	
Kenya	●	●	●	●	●
Lesotho		●	●	●	●

Countries	Kigali Cooling Efficiency Program (K-CEP)	UN Environment - OzonAction Programme and U4E (UNEP)	HPMP Project (BMZ/GIZ)	Solar Chill project (GEF)	Green Cooling Initiative (GIZ/BMUB)
Liberia	●				
Madagascar				●	
Malawi				●	
Mali	●			●	
Mauritania					●
Mauritius					●
Morocco		●		●	
Mozambique				●	●
Namibia				●	●
Niger	●				●
Nigeria	●			●	●
Republic of the Congo				●	
Rwanda	●			●	
Senegal	●			●	
Seychelles				●	●
Sierra Leone	●				●
Somalia					●
South Africa	●				
South Sudan					●
Sudan			●		●
Swaziland			●		
Tanzania				●	●
Togo	●		●	●	●
Tunisia	●			●	
Uganda	●				●
Zambia					●
Zimbabwe			●	●	●

● Kigali Cooling Efficiency Program (K-CEP)

The Kigali Cooling Efficiency Program (K-CEP) is a philanthropic collaboration launched in 2017 to support the Kigali Amendment of the Montreal Protocol by focusing on the transition to energy efficient, climate-friendly, affordable cooling solutions for all. In Africa K-CEP is supporting various governments to develop: national cooling plans; Minimum Energy Performance Standards (MEPS) for air-conditioners and refrigeration; financial mechanisms to transform cooling markets; compliance measures to enforce cooling policies; and training of cooling professionals and policy makers. K-CEP's support extends to the private sector in Africa to help understand the design options and costs for more efficient, clean cooling technology. K-CEP is also exploring how best to improve access to cooling for people and communities in Africa that are most in need.

● UN Environment - OzonAction Programme and U4E (UNEP)

OzonAction and U4E are conducting capacity building workshops for National Ozone Officers (NOOs) and National Energy Policymakers (NEPs) from 147 developing countries that cover a broad spectrum in terms of size, population and consumption and production of refrigerants. The scope of work includes linking NOOs and NEPs through interactive exercises, introducing concepts related to energy efficiency and refrigerants, highlighting market transformation opportunities through model policies and financial mechanisms, and beyond. U4E will also update Country Savings Assessments for all countries and pilot National Product Registration Systems.

● HPMP (Hydrochlorofluorocarbon Phase-Out Management Plans) Project (BMZ/GIZ)

On behalf of the Federal Ministry for Economic Cooperation and Development (BMZ) the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH with its programme Proklima supports partner countries in meeting their requirement to phase-out ozone-damaging fluorinated greenhouse gas (CFC, HCFC, HFC) emissions under the Montreal Protocol. The activities include measures such as policy advice, capacity building, technical support regarding the transition towards alternative technologies and awareness raising. Currently, support is provided to several countries in Africa, including Kenya, Lesotho, Liberia, Mauritius, Namibia, Seychelles and Zimbabwe.

● Solar Chill project (GEF)

The aims of the SolarChill Project are (a) to conduct wide scale field tests of various models of solar direct drive vaccine coolers; (b) to stimulate the development and field testing of solar direct drive food refrigerator prototypes; and (c) to initiate interest and investment by the local and regional private sector in the manufacturing and marketing of SolarChill type medical and food refrigerators. The project aims at demonstrating the reliable and affordable use of the SolarChill technology for medical, household and commercial purposes.

● Green Cooling Initiative (GIZ/BMUB)

The Green Cooling Initiative's main objective is to promote climate-friendly and sustainable cooling technologies on a global level. GCI provides sector-specific data and material to both members of the private sector wishing to invest in a certain country as well as policy makers who seek to reduce emissions. GCI shares information on technologies, regulations, market trends, funding and emission reduction potentials on the country level to the extent possible. Aiming at a reduction of emissions from the cooling sectors, GCI combines three approaches: 1) promoting natural refrigerants, 2) maximising energy efficiency, and 3) fostering a sustainable approach to private and commercial energy consumption.

Contact us

For more details please visit www.k-cep.org, follow us at @Kigali_Cooling, or contact us at info@k-cep.org

