



**Western Cape
Government**

Environmental Affairs and
Development Planning



funded by
Bavarian State Ministry of the
Environment and Consumer Protection



BETTER TOGETHER.

PROJECT INTRODUCTION – COOPERATION BETWEEN WESTERN CAPE GOVERNMENT, BAVARIA AND GIZ PROKLIMA

Climate-friendly Refrigeration and Air Conditioning

Dr Joy Leaner, DEA&DP
Ms Elisabeth Dusik, Bavarian Environment Agency
Elsenburg, 20 June 2019

ACTION PLAN 2016 – 2018

- The Western Cape Government and the Free State of Bavaria signed an Action Plan (2016-2018) in July 2016 stating **cooperation** on many topics such as business education, science and research, local government promotion and cooperation, climate change, environment, urban development and youth exchange, among others.

RAC cooperation project specified:

- Exchange** of RAC-Experts
- Establishing training** concepts for the use of natural refrigerants
- Highlighting climate friendly solutions** for agricultural processes and buildings
- Enhancing regulations** in the RAC-sector



Background

- Currently, most RAC applications **use fluorinated gases** (F-gases)
 - hydrochlorofluorocarbons (HCFCs) or hydrofluorocarbons HFCs
 - **as refrigerants.**
- These substances have a **high global warming potential (GWP)** and are up to several thousand times **more potent than carbon dioxide (CO₂).**
- When these **gases leak** – for example **during operation, servicing** or when an **appliance is recycled or scrapped** – they cause substantial emissions that contribute to global warming.

Background: Transition to Climate-Friendly Refrigerants

Refrigerants can pose a threat to the environment due to their **ozone depletion potential (ODP)** and **global warming potential (GWP)**

1st Generation:
Water, Ethyl ether,
Sulfur dioxide,
Carbon dioxide,
Ammonia

2nd Generation:
Chlorofluoro-
carbons (CFCs),
Hydrochlorofluoro-
carbons (HCFCs)

high
ODP high
GWP

3rd Generation:
Hydrofluoro-
carbons (HFCs)

zero
ODP high
GWP

**Natural
Refrigerants:**
Water, Carbon
dioxide, Hydro-
carbons, Ammonia

zero
ODP low
GWP

Phase-out under the Montreal Protocol (1987)

Listed under the Kyoto Protocol
Phase-down under the Kigali
Amendment to the Montreal
Protocol (01.01.2019)

South Africa and the Kigali Amendment of the Montreal Protocol



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Parliament adopts two reports on Ratification of International Treaties

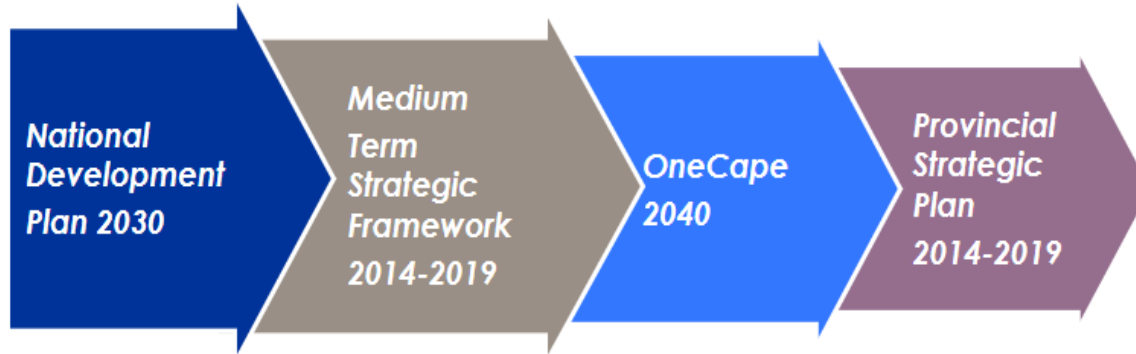
19 Mar 2019

Select Committee adopts two reports on Ratification of International Treaties

The Select Committee on Land and Mineral Resources has adopted reports on the ratification of two treaties on the Kigali Amendment to the Montreal Protocol on substances that deplete the ozone layer to include hydrofluorocarbons (HFCs), and the Southern African Development Communities (SADC) Protocol on Environment for Sustainable Development.

Source: <https://www.gov.za/speeches/select-committee-adopts-two-reports-ratification-international-treaties-19-mar-2019-0000>

Western Cape Government Provincial Strategic Plan 2015 – 2019



*The Western Cape Government is committed to improving the resilience, sustainability, quality and inclusivity of the urban and rural settlements in the Province through **three strategic objectives***



PSG 4:
Enabling a Resilient, Sustainable, Quality and Inclusive Living Environment



2014-2019

Facilitate improvements in Western Cape settlement development and functionality

Improve climate change responses

Improve management and maintenance of the ecological and agricultural resource- base

Refocused and Integrated Priorities for 2017-2019

Integrated Human Settlements & Transit-Oriented Development Partnerships

Drought Management, Water Security & Climate Change Response



OUTCOMES

Climate Change Response

DELIVERABLES

To provide a comprehensive overview of Climate Change response progress, driving a transversal approach to policy & decision making and combined effort to enhance effectiveness of partnerships & funding.

PROJECTS

- 1516 Smart Agri
- 1516 Monitoring and Evaluation annual Report
- 1520 Climate Change Data Coordination
- 1520 Air Pollutant and GHG Emissions Inventory as an Informant to Climate Change Response
- 1520 Report on the Implementation of the PBSAP
- 1617 Western Cape Energy consumption and CO₂ database
- 1618 Economic Risks and Opportunities of Climate Change in the Western Cape

Western Cape Air Quality Management Plan 2016

Vision: “*Clean and healthy air for all in the Western Cape*”

- **Goal 4:** Support air quality and climate change response programmes, including promoting and facilitating the reduction of greenhouse gas emissions
 - Reduce ozone depleting substances and greenhouse gas emissions, in line with national and international requirements
 - Western Cape Air Quality Management Plan introduced a recognition programme, viz. **SMART-air Programme**



Refrigeration and Air Conditioning (RAC)

Linkage with the main objectives of the SMART-air Programme, which are to:

- **Raise awareness** on air quality and climate change response;
- **Promote and recognise** the use of **emission abatement and mitigation technologies** (cleaner technologies) that **reduce air pollutant and greenhouse gas emissions**;
- **Target youth and the unemployed** as part of the capacity building and **skills development component of the Programme**; and
- Facilitate **capacity building and skills development** in the use of **emission abatement and mitigation technologies** (cleaner technologies) by **industry and commercial activities**.



Bavaria's Climate Policy

Bavaria is actively involved in the following three areas;

- 1** Reducing greenhouse gas emissions
- 2** Adapting to the consequences of climate change
- 3** Supporting research and development

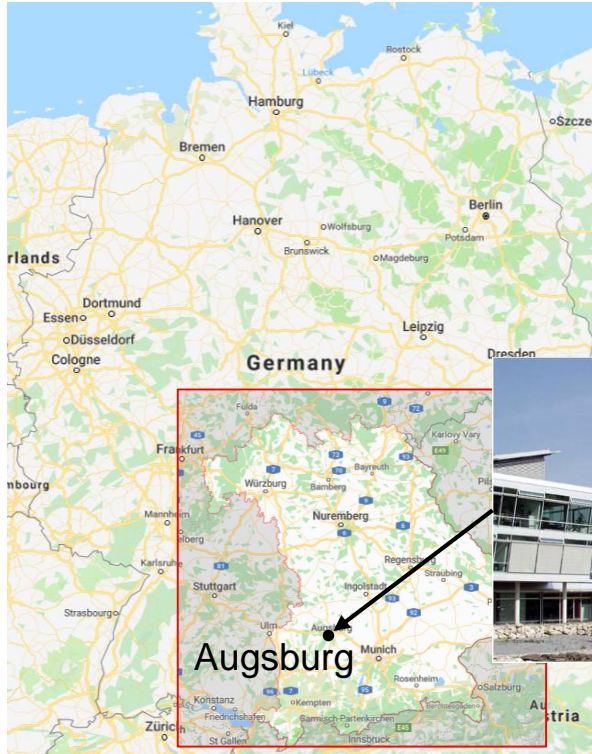


Source: Foto by Wolfgang Palzer,
Nationalpark Berchtesgaden

Bavaria's climate policy is based on close cooperation among policy-makers, the business community and society

Bavarian Environment Agency

The Bavarian Environment Agency is the central authority for environmental protection and nature conservation, geology and water resources management in Bavaria.



Source: LfU

Climate & Energy

Air

Radiation

Analysis

Waste

Water

Noise

Soil

Nature

Geology

Source: LfU

Cooperation project on the transition to climate-friendly refrigeration and air conditioning

Cooperation partners

- Department of Environmental Affairs and Development Planning, Western Cape Government
- Bavarian State Ministry of the Environment and Consumer Protection
- Bavarian Environment Agency
- GIZ Proklima, Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Project Timeframe

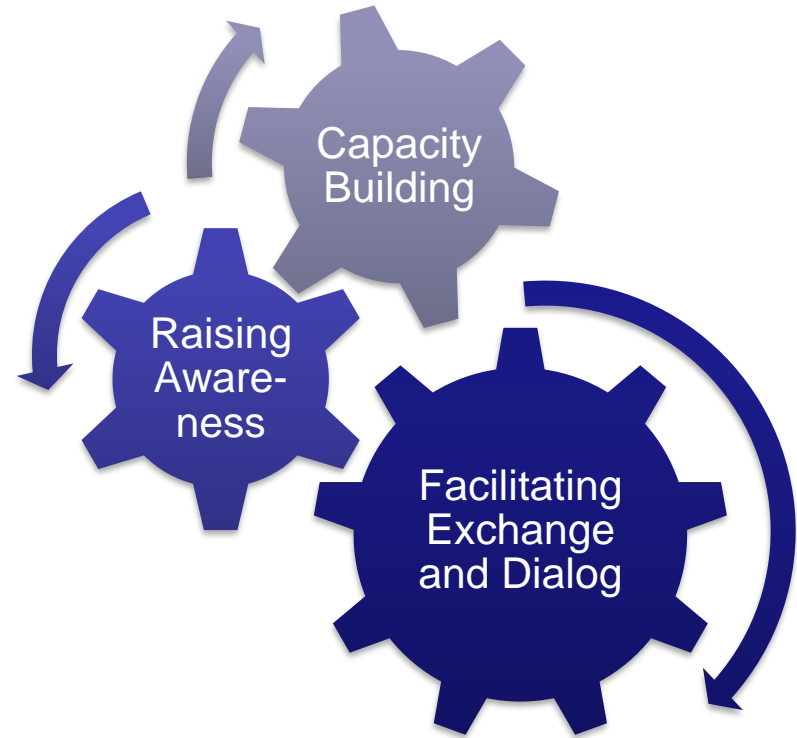
- Timeframe: October 2017 – September 2020



Source: AKS - Fotolia

Project goals

- Support the reduction of HFC-based emissions
- Dissemination of information and knowledge about climate-friendly cooling technologies
- Facilitate exchange and discussion among experts and stakeholders
- Support the successful transition to climate friendly cooling technologies



Project activities – Cool Training

- **Training the Trainers:** GIZ Proklima 2 week „Cool Training“ course - training for 7 experts from South Africa at the Vocational Training Center for Cooling Technology Maintal, Frankfurt:
 - safe application of natural refrigerants such as hydrocarbons and CO₂
 - refrigerant circuit pipes joining and installation methods
 - leak finding and tightness test activities etc.
- Visit companies in Bavaria that implement cooling technologies with natural refrigerants



Fotos: LfU

Fotos: LfU

Project activities

- Two workshops on policy and technical aspects of natural refrigerant technologies
- Support the transition to natural refrigerants through a pilot project
- Raising awareness through information in the internet and presentation at events
- Exchange through delegation visits between Bavaria and the Western Cape: **Scientific Study Tour & IFAT in Bavaria, 14 -18 May 2018, DEA&DP Officials.**



Source: LfU

Future activities

- **Cool Training in 2019 & company visits in Bavaria** for 4 experts

When? 01.08 – 16.08.2019

07.10 – 22.10.2019 → **2 slots available**

CVs to Ms. Benson

sally.benson@westerncape.gov.za

Who? Experts and trainers from RAC field

- willing to act as a multiplier of the acquired knowledge
- physically fit
- able to work in English

Costs? Included: course fees, accomodation in Frankfurt & Munich, lunch on course days, transportation to and from the training institute, train tickets Frankfurt - Munich

Own costs: international flight tickets, health/travel insurance, visa fees, dinner, lunch on free days, daily allowances

Future activities

- **Pilot project** to support the transition to climate-friendly refrigeration and air conditioning



Join our session on **Developing a RAC pilot project** on 21 June 2019, 14:30 – 16:30 and brainstorm ideas and develop aims & objectives with us

- **2nd Technical Workshop** on climate-friendly refrigeration and air conditioning in 2020

Thank you for your attention!



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