



# Cool projects of GIZ's Program PROKLIMA



Nika Greger  
GIZ Proklima International



## Introducing Proklima - Overview:

- Montreal Protocol: Implementation of the German bilateral quota (20% of the German contributions to the Multilateral Fund)
- Policy Advice: Support governments of partner countries on drafting regulations and setting policies that comply with international environmental agreements
- Operationalizing cross-conventional strategies and realizing synergies with other multilateral environmental agreements (e.g. Paris Agreement and NDC development)
- Technology Transfer: Support of ozone layer & climate friendly technologies in RAC and Foam sectors
- Emission Reduction: Reducing the consumption of industrial gases with negative climate impact in RAC and Foam sectors



## Introducing Proklima - Worldwide

- 20 years of worldwide initiatives
- > 240 projects
- > 40 Partner countries
- > 10.000 ODP tons reduced
- ~ 100 million tons CO<sub>2</sub>eq. reduced
- ~ 35,000 trained refrigeration technicians

On behalf of:



Federal Ministry  
for the Environment, Nature Conservation,  
Building and Nuclear Safety

of the Federal Republic of Germany



***Focus on natural refrigerants with low-GWP and energy-efficient applications***



## Status quo – Why we do it:

- Developing and emerging countries: increasing demand for **climate friendly technologies**
- Climate-friendly technologies (natural refrigerants & foam blowing agents) are **proven, available** and **economically feasible** for all main RAC sectors
- Successful examples of **Technology Cooperation** exist
- Challenges for market introduction in developing and emerging countries: removal of **technical, cultural, political, legal barriers**





*Guidance* – quality info; when, where and how



*HPMP consultants* – better assisted to advise on HCs

## How we do it:

*Training* – critical to adopt dedicated training



*Technical development* – reducing charge sizes, safety controls systems



*Regulations* – impose better control of industry to work safely



*Awareness-raising* – of the (climate) problem and possibilities for HC options

*Financial incentives* – subsidies for low-GWP, tax disincentives for high-GWP



## Supermarket Refrigeration - Background

- Project Volume EUR 1,7 Mio. from BMUB
- Project Duration: Oct 2008 – June 2013
- Country: South Africa / Project Partner: Department of Environmental Affairs
- SA with more than 1000 large super- and hypermarkets, RAC equipment account for up to 70 % of supermarket's energy costs
- Technology cooperation with private sector – supermarket chain Pick 'n Pay / Trading area for store at Strand: 1800 m<sup>2</sup> and at Rand park Ridge: 2300 m<sup>2</sup>





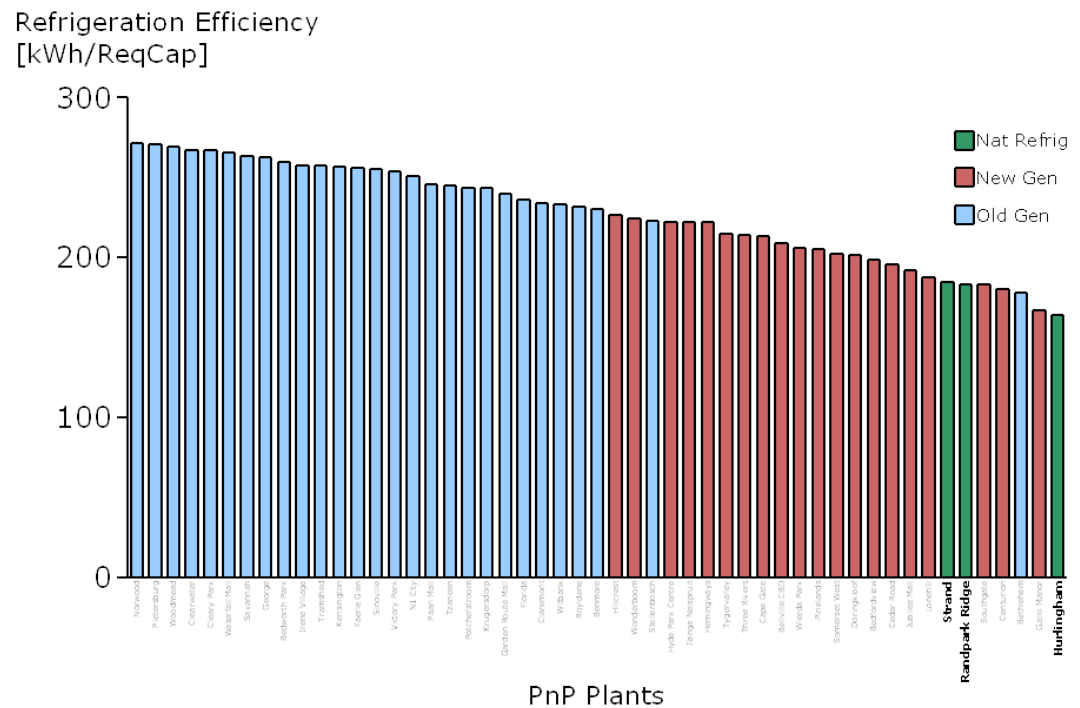
## Supermarket Refrigeration - Activities

- Replacement of old refrigeration and air-conditioning systems that used fluorinated refrigerants (HCFC 22 and HCFC 404a) in 2 supermarkets into cascade system using natural refrigerants ammonia/ NH<sub>3</sub> (medium temperature) and CO<sub>2</sub> (low temperature)
- Meets all safety requirements of European safety standard
- Establishment of monitoring systems for emission data and energy performance
- Capacity building of equipment suppliers, engineering & service personnel
- Together with Pick n Pay, other supermarket chains and the industry association, several workshops were conducted in order to advertise the technology and its use, particularly in South Africa.



# Supermarket Refrigeration - Impact

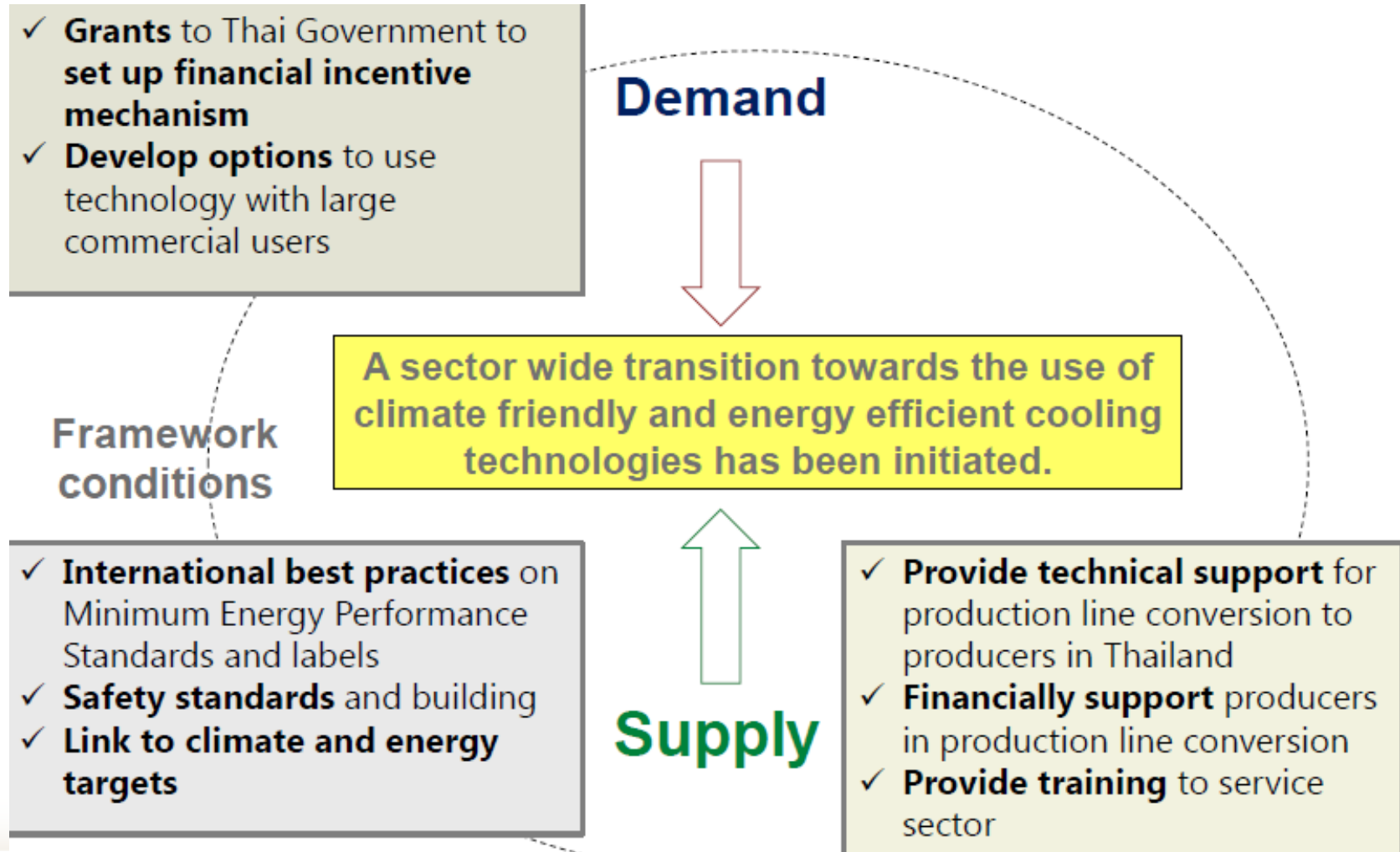
- Energy savings: 13% for Strand and 21% for Randpark Ridge
- Cost comparable to synthetic refrigerant systems, considering OPEX and CAPEX
- 5 year higher system life expectancy
- 25 additional Pick n Pay stores installed climate-friendly systems
- Technology is increasingly accepted in other neighboring countries







## RAC NAMA Thailand





## Activities in the commercial refrigeration sector

### **Current situation:**

For commercial standalone units leading brands are Sanden Thailand, Thermedez, Siam Intercool, Sirithana and The Cool. Over 200 000 (2010) units are produced annually in Thailand of which about half are sold in the domestic market.

### **Support under the project:**

- Conversion of production lines towards natural refrigerants (e.g. commercial stand-alone units) & set-up of demonstration projects (e.g. centralized systems for supermarkets)
- Develop Minimum Energy Performance Standards (MEPS) for commercial refrigeration appliances and build testing facilities
- Establish a training and certification scheme for service technicians
- Introduce the converted units into the market by offering financial incentives to end-users



COUNTRY DATA

## The refrigeration and air conditioning sectors around the world

Our world map allows you to explore a wide variety of data: refrigeration and air conditioning appliances in use, unit sales, emissions and emission mitigation potentials in the cooling sectors both today and in the future.

[explore data >](#)

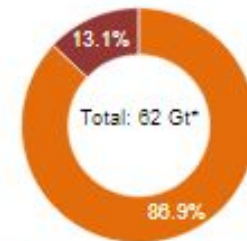


COOLING SECTORS

## Global greenhouse gas emissions in 2030

Global greenhouse gas emissions and percentage contributed by the cooling sector (projections for 2030)

[switch to Table](#)



\*in CO<sub>2</sub> eq



NETWORK

## Our network and best practice examples

Do you want to contribute to making green cooling a worldwide success story? The Green Cooling Initiative is looking for network members and best practice examples.



TECHNOLOGY

## Green cooling - markets and technologies



Natural refrigerants and high energy efficiency are



ABOUT

## Green Cooling Initiative

Refrigeration and air conditioning are responsible for a significant share of the global greenhouse gas emissions. Especially in developing and emerging countries, the demand for cooling equipment is rising. Low levels of efficiency and high leakage rates of refrigerant gases with high global warming



Join the GCI-Network! <http://www.green-cooling-initiative.org/network/>

### Green Cooling Network

The Green Cooling Network is a network of Companies, Organisations, and Government Institutions aiming at a reduction of emissions from the cooling sectors. Click on the logos below and find out more about our members and their Best Practice Examples, or click here to find out how to become a member!



green<sup>ox</sup>  
cooling initiative

» PROMOTING GREEN COOLING  
WORLDWIDE «

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**Network**

Companies

Organisations

Government Institutions

Best practice examples

Become a member

» [Network](#) » [Government Institutions](#) » [Bavarian Environment Agency \(LfU\)](#)

## Bavarian Environment Agency (LfU)

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

We gather and evaluate data concerning the state of the environment in Bavaria. We use this to develop objectives, strategies and plans for sustainable utilization and safeguarding of our environment. Depending on the area of activity, we play a role as expert evaluator, providing opinions and functioning as a supervisory or approval authority.

The LfU employs over 1000 scientists, engineers, technicians as well as laboratory personnel and administrative staff. The head office is located in Augsburg, with further offices spread at 6 other locations over Bavaria.

**Best practice:**

**Co-operation with the Israeli Ministry of Environmental Protection on F-gas reduction**

The Bavarian State Ministry of the Environment and Consumer Protection (StMuV) along with the Bavarian Environment Agency (LfU) has embarked on a multilateral cooperative effort with the Israel Ministry of Environmental Protection (MoEP), aimed at reducing climate relevant F-gases with high global warming potential in the refrigeration and air conditioning sectors.

Bayerisches Landesamt für Umwelt

The Bavarian Environment Agency (LfU)  
Israel  
Germany

green<sup>ox</sup>  
cooling initiative

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On behalf of:

Federal Ministry for Economic Affairs and Climate Action  
Building a Sustainable Future

at the Federal Republic of Germany

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**Thank you!**  
**Questions?**

**Nika Greger, GIZ Proklima International**  
**[nika.greger@giz.de](mailto:nika.greger@giz.de)**

