



**ATMO**  
**UN sphere**  
technology summit  
**natural solutions**



## UNIDO ATMOSphere Technology Summit

Natural Solutions for Developing  
Countries

3 – 4 June 2013

UNIDO Headquarters, Vienna, Austria

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- UNIDO ATMOsphere Technology Summit was an ATMOsphere conference organized by shecco and UNIDO;
- Main objectives:
  - Engage stakeholders in a discussion on natural refrigerants and foam blowing agents with low global-warming potential.
  - Present market trends, policy updates and technology available in developing countries.

**Significant step towards better understanding needs and opportunities for natural refrigerants and foam blowing agents with low global-warming potential.**



#2

Green Week 2013  
satellite event



- The UNIDO ATMOsphere Technology Summit was an official satellite event of the **Green Week 2013** of the **European Commission**;
- Green Week is the biggest annual conference on European environment policy organized by the European Commission between 4 and 7 June 2013 in Brussels;
- Air quality was the theme of this year.





# #3

## Partners & Participants

- UNIDO;
- shecco;
- European Commission;
- GIZ Proklima;
- Representatives from the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol;
- UNDP;
- UNEP;
- Foreign Economic Cooperation Office, Ministry of Environmental Protection of China;
- The Federal Environment Agency of Germany;
- NOUs from thirteen countries;
- Universities, scientific institutions;
- Greenpeace;
- National professional associations;
- Representatives of private sector from fifteen countries.



• **Introduction and Market Trends**

- Natural Refrigerants in Various Applications;
- Market overview;
- Technology and Market Trends.

• **HCFC Phase-out Management Plan**

- UNIDO's Experience;
- UNIDO-GEF Cooperation – Innovative financing solutions;
- Reducing the consumption of fluorinated gases in the EU;
- Implementation of the HPMP in China and Mexico.

• **Side Event: Experience in China in the AC Sector**

- UNIDO in China, in particular the ongoing demonstration projects by UNIDO and GIZ to convert RAC production plants to R-290.

• **Business Case Panel**

- Experience from supplier and consumer brands around the world.

• **Technology Case Study Session**

- Low GWP Refrigerants in the AC Sector in High-Ambient Temperature Countries;
- Emerging Countries in Natural Refrigerants;
- U.S. Considerations;
- Safe and Responsible Usage.





### Market Trends:

- Natural refrigerants have the **potential to become a mainstream option worldwide**
- **Direct and indirect environmental impact, followed by efficiency and reliability, training and know-how, and safety considerations** is a driving force in encouraging the use of natural refrigerants

### HCFC Phase-out Management Plan:

- Some companies are converting to hydrocarbons by themselves because of the **cost**
- Achieving compliance targets under the Montreal Protocol involves a **multitude of industries, sectors and alternatives to HCFCs, including natural refrigerants**





**Business Case Panel:**

- In Thailand, AHT has already installed a total of 2,750 R290 cabinets across the country, reporting that **hydrocarbon freezers can achieve a 60% reduction in running costs** compared to conventional open top freezers
- China's main players in the RAC industry are confident that the domestic market will be ready for R290 RAC in the near future.
- The “Refrigerants, Naturally!” initiative has placed more than **2.5 million HFC-free refrigeration units in almost all countries around the world and phased out more than 1 million tons of CO2 emissions equivalent**
- In 2010 Brazil's Verdemar started using **CO2 cascade refrigeration systems in its stores, spurring the uptake of natural refrigerants by other retailers in the region**



**Technology Case Study Session:**

- Globally, CO2 technology and products are becoming **increasingly available**
- Refrigeration and air-conditioning technologies in **high ambient temperatures is currently a challenge:**
  - UNEP and UNIDO are implementing a demonstration project with the participation of Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and the UAE
  - The project will entail the manufacture of prototypes (window, split, central) with up to **4 different low-GWP alternatives**, independent testing of prototypes, testing as per AHRI/ASHRAE standards including a high ambient test, and an assessment study on alternative technologies





### • Training and Safety

- Transformation Pathways for Safe and Sustainable Refrigeration;
- Training and Safety in AC Manufacturing, Servicing and Industrial Refrigeration Sector;
- Overcoming Barriers of Natural Refrigerants in Developing Countries;
- Experience in the Gambia, in Kuwait and in Pakistan.

### • Technology Case Study Session

- UNIDO's Demonstration Project on the Conversion of HCFC-22 Based Facilities to Ozone and Climate Friendly Alternatives in the Fishing / Food Processing Sectors;
- Use of Natural Refrigerants in Industrial Plants in Article 5 Countries.

### • Side Event: Green Cooling for a Warming World – GIZ Proklima

- Alternatives in Light of Efficiency, Safety and Geographical Location.

### • Foam Blowing Agents

- General Overview of the Sector;
- Practical experiences in the Production of Insulation Foams with Hydrocarbon Blowing Agents in Developing and Developed Countries;
- Experience in the Philippines and in Brazil.





## Training & Safety

- Providing technical alternatives and resolving financial issues is not enough when accelerating new technologies
- A combination of measures is required, including:
  - Significant **reform of policies, institutions, standards and regulations**
  - **Training of skills and a culture of continued education and knowledge sharing**
  - Building of capacities and the introduction of **certification and quality assurance** schemes

## Training & Safety Panel

**Governments and industrial stakeholders** have to actively support end-users when introducing natural solutions to developing countries



### Technology Case Study Session:

- UNIDO is developing a project on the conversion of HCFC-22 facilities to ozone- and climate-friendly alternatives in the fishing & food processing sectors in Viet Nam and the Gambia, with funding from the MLF in synergy with the GEF

### Foam Blowing Agents

- Pentanes or waterblown are **obvious alternatives** following the tendency to low global warming potential (GWP) developments in developed countries
- **Energy demand decreases effectively with foam insulation. This favours new natural refrigerants**
- **Safety requirements** are of paramount importance when working with **pentane-based blowing agents**
- The case of natural and low-GWP foam blowing agents illustrate how **barriers can be overcome when technology and information are available, especially in regards to training and safety standards.**



# #5

## Outcomes and post-event activities

### Market Survey

shecco, in collaboration with UNIDO, developed a **survey** prior to the event in order to identify:

- current market share for natural refrigerants & foams in developing countries
- market trends in the next 5 years
- main barriers and priority in addressing them
- importance & current contribution of main stakeholders groups

The results of the survey will be finalized in August 2013.

### Guide UNIDO – Natural Solutions for Developing Countries

Launch: Aug / Sep 2013

Highlights:

- Introduction to Natural Substances
- Success Stories: applications of natural refrigerants & foams
- Global Survey results: market shares, trends, barriers, solutions
- Case studies: best practice examples

Dissemination of results at MOP in October 2013



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Thank you very much for your attention

UNIDO  
Montreal Protocol Branch  
Programme Development and Technical Cooperation Division