OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org
Cold Chain Helps Feed The Planet

From farm to table

Food production must increase by around 70 per cent by 2050, in order to feed the global population. The population is expected to grow by 2.3 billion, around 85% of which will be living in developing countries.* Agricultural activity will be under enormous pressure. To avoid irreversible environmental damage, minimizing post-harvest losses is critical.

* Estimated by Food Agriculture Organization (FAO)

- 400 million tons of food globally preserved using refrigeration, out of 2,000 million tons that require refrigerated processes (2010)
- 23% of perishable foods lost in the developing world, due to inadequate or no refrigeration
- 2 liters/capita cold storage capacity in Tanzania and Ethiopia, compared with 53 in Morocco and 344 in the USA
- Less than 4% of India’s fresh products transported under low-temperature conditions, compared with over 90% in the UK

A cold chain is a temperature-controlled supply chain that operates from farm to table. Setting up extensive and reliable cold chains plays a major role in reducing post-harvest losses worldwide, especially in Africa and Asia Pacific.

Hunger for electricity

Energy needs worldwide are steadily increasing.

The refrigeration sector, which includes air conditioning, is currently responsible for around 17% of global electricity consumption. For some developing countries this percentage even exceeds 40 per cent of total national electricity demand.

- 2010: 400 million tons of food globally preserved using refrigeration, out of 2,000 million tons that require refrigerated processes
- 23% of perishable foods lost in the developing world, due to inadequate or no refrigeration
- 2 liters/capita cold storage capacity in Tanzania and Ethiopia, compared with 53 in Morocco and 344 in the USA
- Less than 4% of India’s fresh products transported under low-temperature conditions, compared with over 90% in the UK

Local cooling, global warming

Refrigeration has a direct impact on global warming through the emission of refrigerants (20%) and an indirect impact through energy consumption (80%).

Reducing the impact is therefore possible by:
- Improving energy efficiency of refrigeration systems
- Adopting refrigerants with zero or low climate impact, such as natural refrigerants.
UNIDO tackles technology transfer

UNIDO promotes the switch to systems which are ozone and climate friendly and energy efficient. This aligns with UNIDO’s goal for Inclusive and Sustainable Industrial Development (ISID), which it implements in several ways:

✓ technology transfer
✓ policy and regulatory support
✓ capacity building and training.

The adoption of energy efficient refrigeration technologies can lead to significant energy savings. UNIDO promotes best refrigeration practices and state of the art technologies, thus enabling wider access to effective and efficient refrigeration techniques in countries where limited access to electricity can be a barrier.

CASE STUDY

Reducing greenhouse gas and ozone depleting emissions through technology transfer in industrial refrigeration

Country: Viet Nam

Target group: Cold stores in industrial refrigeration

Objective: To reduce ozone depleting and greenhouse gas emissions. Many cold storage facilities in Viet Nam currently use HCFC-22, a chemical which has a high climate impact. In cooperation with GEF, UNIDO helps create an environment to enable the use of hydrocarbon refrigerants as a replacement for HCFC-22. To promote market development for hydrocarbon refrigerants, the project includes a synergistic combination of policy and regulatory support, technology transfer, capacity building and awareness raising.

Funding Organizations:
GEF (USD 290,000), UNIDO (USD 140,000)

Implementing Partners: UNIDO, Ministry of Natural Resources and Environment, Viet Nam

Project Duration: February 2014 – September 2016

To learn more:
https://open.unido.org/index.html with project ID 120621

YouTube: UNIDO Viet Nam cold chain

To see more, come and join us at
www.facebook.com/EnvironmentDepartmentUNIDO/
Website: http://www.unido.org/unido-united-nations-industrial-development-organization.html
Youtube: https://www.youtube.com/user/UNIDObeta
Facebook: https://www.facebook.com/UNIDO.HQ/

For more information contact: environment@unido.org

DEPARTMENT OF ENVIRONMENT