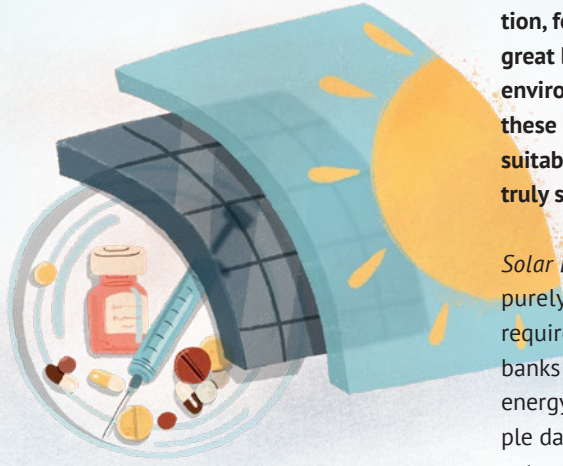


Sustainable cold chains for sustainable development



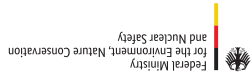
Cooling is a basic need. Preserving medication, food and other perishable goods has great benefits for people's livelihoods, the environment and local economies. Realizing these benefits requires the application of suitable cooling technology to establish truly sustainable cold chains.

Solar Direct Drive (SDD) refrigerators run purely on solar power. Batteries are not required as they store thermal energy in ice banks once solar power is scarce. The stored energy can keep temperatures low for multiple days without power supply. Running on natural refrigerants, such as hydrocarbons that do not harm the ozone layer nor extensively contribute to global warming,

SDD refrigerators are a prime solution for remote and under-resourced areas. The SolarChill is not only environmentally friendly but also economical to run.

Without cooling, food and medication quickly spoil. This results in lost income or danger to human health in the worst case. Conventional cooling technology, however, can greatly harm our environment. Thus, sustainable cold chains are centred at the intersection between the *Montreal Protocol*, the *Paris Agreement* and the *Sustainable Development Goals* to lift up people's lives and livelihoods as well as preserving our environment.

of the Federal Republic of Germany



On behalf of:

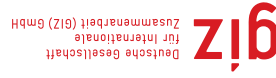


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Keeping medication cool with the power of the sun



Keeping *food* cool with the power of the sun



Sustainable cold chains for public health

Medication – especially vaccines – have to be kept cool, or they become ineffective. Transporting vaccines from where they are produced to where they are needed, often takes place in many stages. A challenge for uninterrupted cooling.

Up to 50% of vaccines are lost each year. Losses are particularly high at service levels in developing countries also due to deficits in cold chain management (WHO & UNICEF, 2018)¹.

Remote areas and other resource constrained settings are particularly affected. With no existing or erratic power supply,

it is challenging to keep medication cool and preserve its quality and effectiveness. The consequences have serious impacts on the wellbeing of people.

Providing access to cooling equipment comes with substantial benefits. Effective vaccines ensure healthy people. Healthy people are able to contribute to create healthy societies. At the same time, cooling equipment must not harm the environment and should be affordable to run.

¹ WHO & UNICEF (2018). Effective Vaccine Management (EVM), Global Data Analysis 2009-2018.



Fresh food plus protecting the environment

Ever thought about how fresh food gets to your plate from its source in nature? 14% of global food produced is currently lost (FAO, 2019)². These numbers are even higher for perishable foods in rural areas of developing countries, where reliable cold chains are rare.

In rural areas in particular, the handling, storage, transport, sale, and consumption of perishable food often takes place entirely outside of temperature-controlled environments. Food loss does not only represent losses in income. It also has harmful impacts on the environment as more food may be produced and disposal of food generates

potent greenhouse gases - not speaking of the danger when consuming spoiled food.

Adequate handling and storage of food often requires cooling equipment. Access to cooling facilities has positive effects on people's livelihoods and the environment. To maximize these benefits, the application of refrigeration technology must not harm the environment and be affordable to run. The SolarChill technology covers both aspects.

² FAO (2019). The State of Food and Agriculture.

