Welcome to SelfChill

Modular cooling solutions powered by solar

The challenge

There are hardly any cooling technologies available for rural areas without electricity supply in the tropics and subtropics

Consequence:

- Low productivity of farmers
- High post-harvest losses
- Enormous food waste

SelfChill approach

SelfChill is a frugal innovation for modular cooling solutions powered by solar

Components

Modular cooling solutions!

✓ **Local materials can be utilized**

The SelfChill team

Phaesun

Official distributor,
Research & Innovation

Solar Cooling Engineering

Development & testing,
pre-assembly of systems,
trainings

UNIVERSITY OF HOHENHEIM
& freelancers

Development,
scientific research &
field testing

+ SelfChill partners in target countries

SelfChill Solar Cooling Unit

Advantages:

- Vapour compression heat pump
- Evaporator plate
- Battery free compatible (Direct-Drive)
- Environmental friendly refrigerant R600a (already filled)
- Optional control unit with remote monitoring and Pay-As-You-Go

How it works

Water chiller to produce and store thermal energy:

How it works

PV Panels

- PV system provides electrical energy

Water chiller =Ice storage

- Several SelfChill Cooling Units serve the water chiller
- They convert electrical energy into thermal energy
- Ice is produced as energy storage with surplus solar energy

Consumer

- Cold water (~2°C) is pumped to the cooling appliance
- Variety of possible cooling appliances: cold rooms, milk tanks, air conditioning, etc.

Medium-scale systems

Solar Cooling Unit

Cold rooms

Milk tanks

Advanced ice-makers

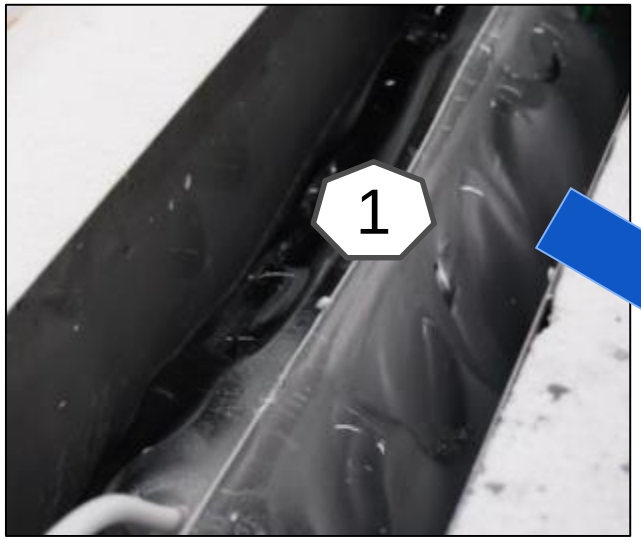
How it works

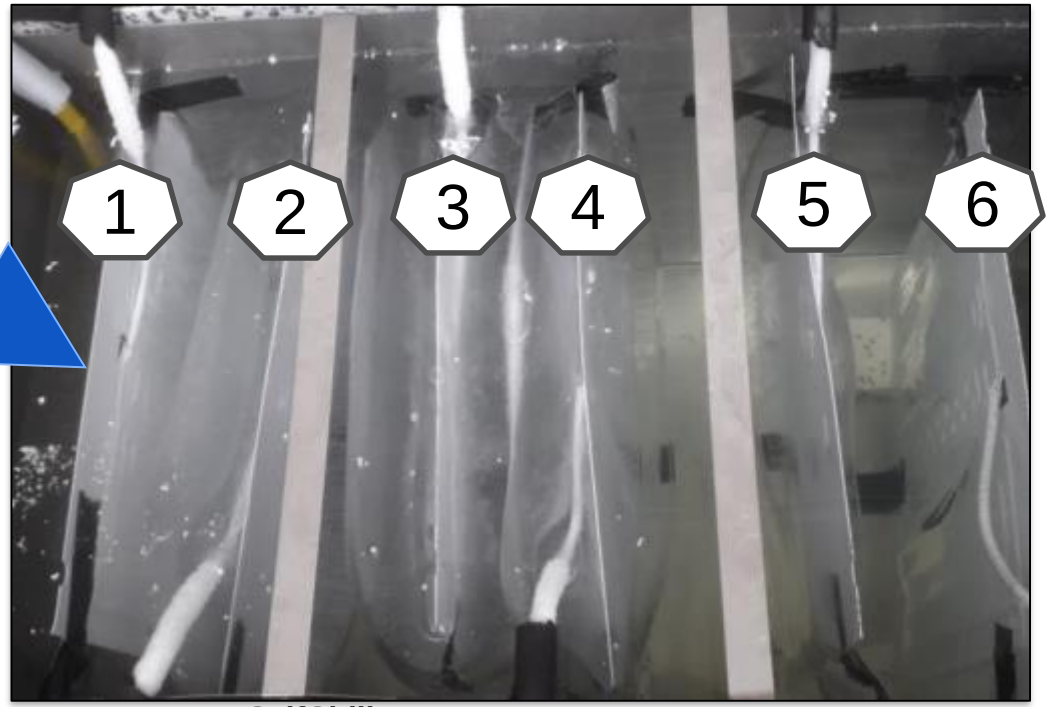
1 Solar Cooling Unit

15 kg ice (in 5kg blocks)
or
3 m³ Cold Room (10°C)
or
80 L milk/day (4°C)

6 Solar Cooling Units

90 kg ice (in 5kg blocks)
or
20 m³ Cold Room
or
500 L milk tank

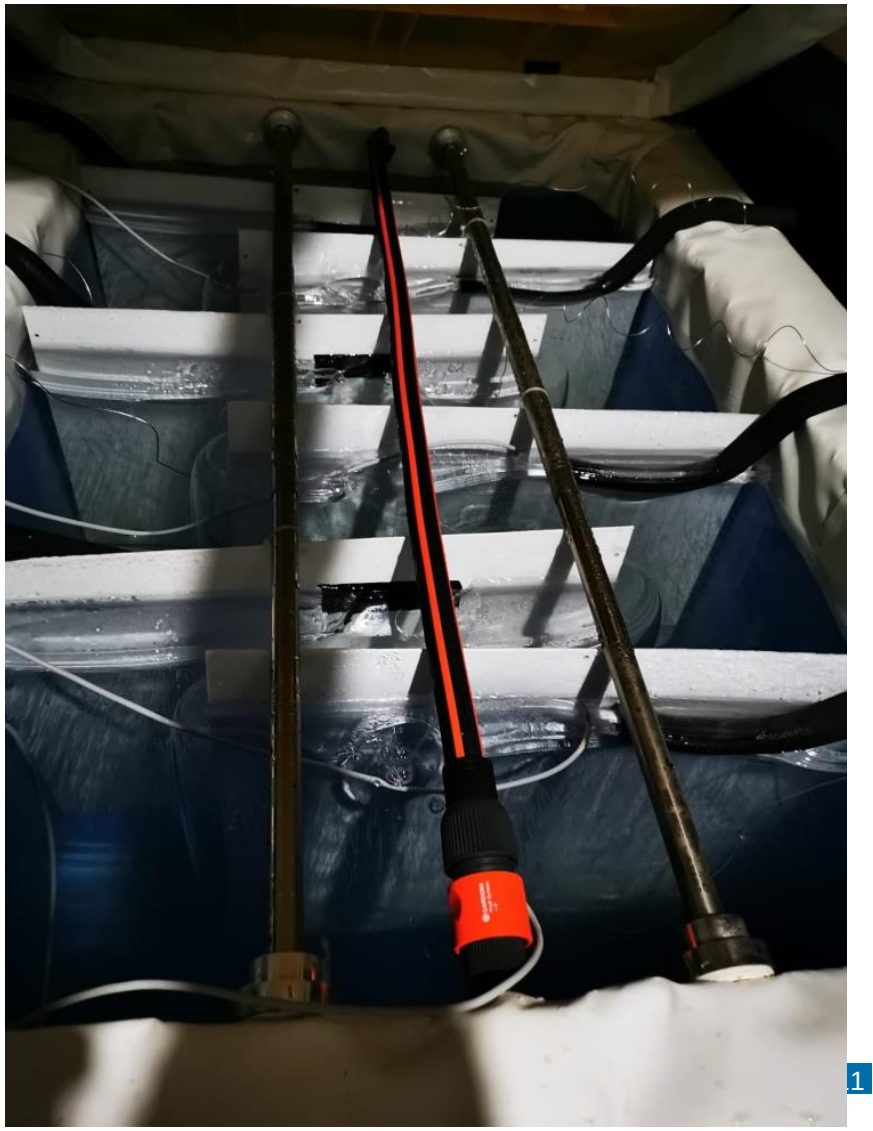




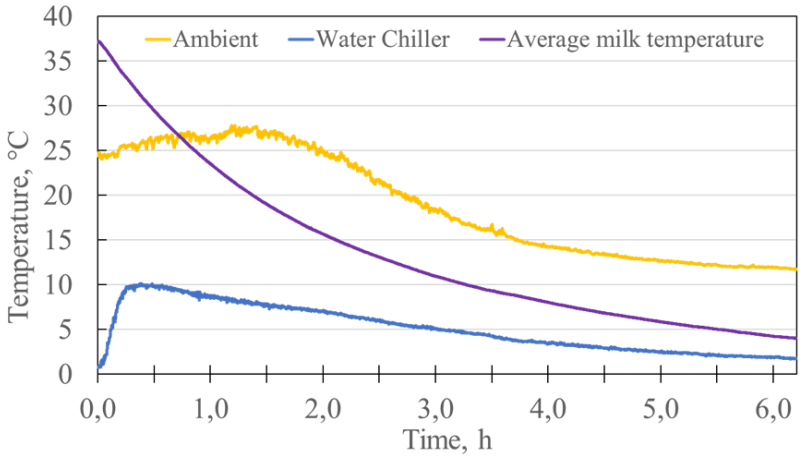
Example: SelfChill cold room in Thika, Kenya

Components	
Room Volume	20 m³
Ice storage	300 kg
6 SelfChill units	450 W
PV Capacity	2100 Wp
Battery capacity	480 Ah
Water Pump + heat exchanger	60 W

Example: SelfChill cold room in Thika, Kenya



Example: SelfChill milk tank in Bungoma, Kenya



Example: SelfChill milk tank in Bungoma, Kenya

SelfChill Ice-Maker 50

Components	
Fresh water ice volume	50 L
4 SelfChill units	300 W
PV Capacity	1400 Wp
Battery capacity	320 Ah
Water Pump	30 W

9kg per
100 L water

Example: Ice-maker in Kisumu, Kenya

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