

## Cold Hubs – Solar-powered walk-in cold rooms for 24/7 storage and preservation

In Nigeria, 45% of food produced spoils post-harvest due to lack of access to cold storage facilities. As a result, 93 million smallholders lose around a quarter of their annual income, threatening food security and already fragile livelihoods. In addition, for smallholder farmers, the impossibility of extending the shelf life of products has also meant more pressure in securing regular sales and finding new markets, low negotiating and selling power, as well as the inability to rely on a regular cash flow to plan expenses and investments.

### Background

Coldhubs is one of the 20 innovators selected through a call for innovation by the West Africa Hub of the WE4F (Water and Energy for Food) programme. The enterprise pursues the goal of scaling up water and/or energy friendly innovations in the agro-industry sector.

Founded in Nigeria in 2015, Coldhubs employs over 78 people and strives to innovatively adapt existing solutions to the local context by providing cold storage options. Cooling significantly slows down the rate of deterioration, thereby increasing the storage life of the produce. Furthermore, the enterprise organizes post-harvest management training where participants obtain a certificate upon completion. These certificates already allowed some of the participants to access small loans to support their businesses.

### Innovation

In 2015, Coldhubs launched a network of 100% solar-powered walk-in cold stations for 24/7 storage and preservation. At the same time, the enterprise offers a pay-as-you-store model and facilitates capacity building on post-harvest management.

### Facts

- In developing countries, 45% of food is spoiled mainly due to a lack of cold storage.
- In Nigeria, food waste causes 93 million smallholder farmers to lose 25% of their annual income.
- Cold rooms can help reduce post-harvest losses by up to 80%.



Photo credits: Cold Hubs

The enterprise's units are usually installed in major food production and consumption centers such as markets and farms. There, farmers can place their produce in clean plastic crates, which are then stored inside the cold room. This allows for the freshness of the produce to be extended from 2 days to about 21 days.

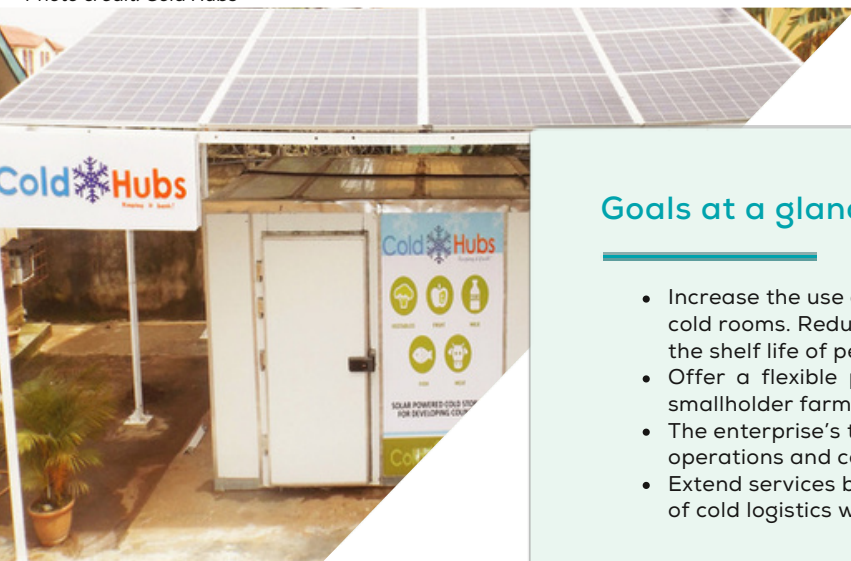
The walk-in cold rooms are made up of 120 mm thick insulating cold room panels which help retain the cold. In addition, solar panels that are installed on the roof-top of the cold room produce energy that is stored in high-capacity batteries. These batteries, in turn, feed the refrigerating unit.

Coldhubs offers farmers a flexible pay-as-you-store subscription model which meaning that users pay a daily flat fee for each crate of food that is stored.

### Advantages and achievements to date

- In 2021, Coldhubs served 6.317 farmers, retailers, and wholesalers across Nigeria. The installed 54 cold rooms in 38 farm clusters, horticultural produce aggregation centers and outdoor food markets
- Reduction of post-harvest losses: In its 54 hubs across Nigeria, Coldhubs saved 2.4 tones of fruits and vegetables from spoilage.
- Reduction of food waste: The shelf life of perishable food is extended from 2 to 21 days. As of 2021, around 52,700 tons of produce were saved thanks to cold rooms.
- Carbon dioxide (CO<sup>2</sup>) reduction: By staying away from fossil fuel and relying exclusively on solar panels for energy generation, the enterprise saved 2.4 tones of CO<sup>2</sup> in 2021.
- Increase Local Farmer Income: With more of their harvest to sell, smallholder farmers increased their annual income by at least 25%.
- Increase jobs for Women: In 2021, Coldhubs created more than 80 jobs for women by hiring and training them as Hub operators and market attendants.

Photo credit: Cold Hubs



### Goals at a glance

- Increase the use of renewable energy by using solar energy for the cold rooms. Reduce post-harvest losses and food waste by extending the shelf life of perishable food.
- Offer a flexible payment method to make cold rooms accessible to smallholder farmers.
- The enterprise's target is to hire mainly women to manage its operations and collection of revenue.
- Extend services by covering the entire cold chain through the inclusion of cold logistics with cold trucks.

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More about the global initiative Water and Energy for Food (WE4F) Grand Challenge: <https://we4f.org/>

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