



ideas to impact.



Global LEAP Off-Grid Cold-Chain Challenge

IDENTIFYING THE WORLD'S BEST OFF-GRID COLD CHAIN TECHNOLOGY

Modern cold chain technology is crucial to developing local and international agriculture-based markets and improving economic outcomes and food security.

The Emerging Cold Chain Market

Cold chains manage the temperature of perishable products from farm to table and play a critical role in developing countries, where food losses for farmers during post-harvest and processing can be as high as 40%.

Cold chains reduce post-harvest crop loss, increase profits through greater bargaining power at the market place, and enable better commercialization of agricultural produce in regional and international markets. Establishing cold chains as extensive and reliable as those in industrialised countries would enable developing countries to raise food supply by 15% – about 250 million tonnes.

A complete cold chain involves multiple stakeholders, including farmers, aggregators, transportation companies, warehouses, and processing centers. However, modern cold chain technology is often out of reach in off-grid areas in developing markets due to its cost, a lack of access to electricity, and the wide variety of uncoordinated stakeholders in the broader cold chain market.

Although establishing a complete cold chain in developing markets can be a long and challenging process, **small-scale interventions targeting specific components of the process can address missing links and catalyze the development of robust cold chains markets.**

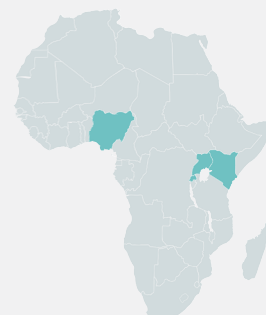


Final prize winners will be announced on 22 Jul 2019.

The Global LEAP Off-Grid Cold Chain Challenge is an international competition to identify and promote the most energy-efficient, sustainable and cost-effective technologies that can meet the cold storage requirements for fresh fruits, vegetables and dairy products in the following countries: **Kenya, Rwanda, Uganda and Nigeria.**

The OGCCC was developed in partnership with Energy 4 Impact, as part of the UK aid-funded Ideas to Impact programme, which is delivered by an IMC Worldwide-led consortium. The OGCCC aims to stimulate off-grid cold chain refrigeration for farmers and small traders, enabling better commercialisation of agricultural produce.

In June 2018, 10 promising companies were selected to progress to the second stage of the competition. In Stage 2, nominated products undergo rigorous field testing that will comprise of technical performance captured through remote monitoring equipment and qualitative surveys. All data will be reviewed and evaluated by a panel of off-grid market experts.



The Global LEAP Off-Grid Cold Chain Challenge

Off-Grid Storage Container

A Remote Monitoring and Sensors

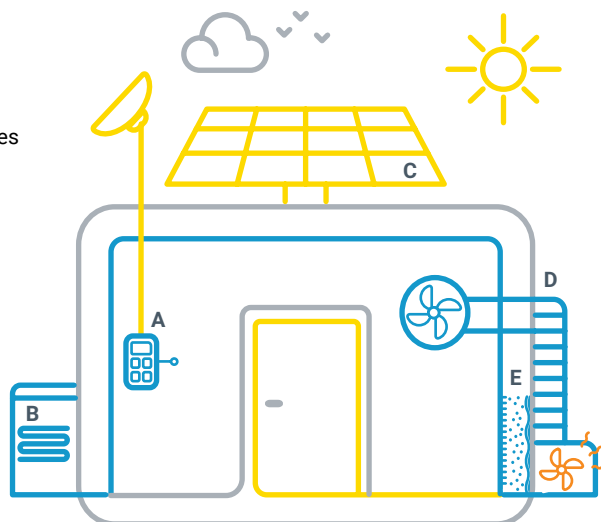
- Door openings
- Humidity and temperature
- GSM enabled for real-time updates

B Thermal Storage

- Phase change material embedded in the unit as thermal plates leading to over 24h autonomy
- Battery storage – battery sizing varies considerably by location

C Solar Array

- Typically positioned over the container to create shade
- Sizing ranges from 1.5-8.9 kW
- Nominal voltage is 24 or 48V



D Cooling Unit

Two types of cooling units predominate this space



- Augmented on the shelf split AC Unit – Several companies have developed a charge controller that overrides the lower limitation on a traditional AC unit allowing the unit to operate at the optimal temperature for a given produce

- Bespoke compressor based cooling unit
- Storage size ranges from 9-90 cbm.




E Insulation

- Poly Urethane Foam siding with aluminum cladding 80-150mm thick
- Recycled shipping container retrofitted with spray foam
- Clay bricks with recycled plastic bottles

Benefits to Winners and Finalists

-  Shortlisted technologies received a cash prize of £10K to cover shipping and set-up costs. The three winners will receive innovation prizes of £75k, £35k, and £25k respectively.
-  Opportunity to participate in donor initiatives and programmes dedicated to cold chains in developing countries.
-  Attraction of further investment or development for piloting, replication and scaling, with franchise development for larger technology manufacturers.
-  All shortlisted technologies will be promoted in a global campaign, which will include publicity and networking opportunities with distributors and investors.

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Timeline

