

Stakeholders Workshop: Challenges and Opportunities in the Cold Chain Sector

August 2022



BACKGROUND

Cooling services are essential in emerging markets where agriculture is a key economic activity and a source of livelihood for nearly 80% of people. Smallholder farmers in sub-Saharan Africa specifically produce approximately 70% of the continent's food supplies. About 40% of food losses in sub-Saharan Africa occur between farms and markets, with two-thirds of this loss occurring in the first mile. As the demand for fresh produce in sub-Saharan Africa increases, both from domestic and international markets, early access to cold chains can reduce post-harvest losses by up to 25%, maintain the market value of the produce and consequently ensure adequate returns to the farmer.



Despite this immense potential of agricultural cold chains, first mile access to cooling services remains low across sub-Saharan Africa owing to barriers related to affordability of the technology, lack of awareness, weak enforcement laws on fresh produce and livestock value chains, poor transport infrastructure, unreliable energy supply, and poor market linkages among others.

Efficiency for Access, in partnership with ESMAP, convened a Cold Chain Stakeholders Workshop on 27 May 2022 in Nairobi, Kenya to deliberate on how to advance and scale cooling solutions to smallholder farmers in the first mile and throughout agricultural cold chains. Further, the workshop acted as a platform to accelerate interactions among various actors in the sector and inform the design of upcoming programmes under development by the Efficiency for Access and ESMAP teams.

WORKSHOP OUTCOMES

The half-day workshop brought together more than thirty stakeholders, including cold chain technology providers, programme implementers, produce aggregators and distributors, academia, and financial institutions.

Discussions at the workshop focused on four key areas: technological innovation/intervention, operational/implementation models, financing mechanisms and the role of the public sector. Participants collectively identified and prioritised the following action items.

WORKSHOP OUTCOMES

Technological Innovation & Intervention



- Adopt responsive technology which can adapt to the business approach and use cases of rural farmers
- Design solutions that integrate multiple value chains, are modular, and can be used across different food seasons
- Take a holistic approach in the process of technical solutions development i.e., start by identifying the lowest level of technology needed for cooling for rural farmers, its cost, and how it evolves over time and across the value chain; then determine where the focus of cooling solutions should be to service rural farmers
- Increase Research & Development efforts for solar-powered freezing technologies for livestock value chains in tandem with more advanced efforts in cooling/chilling technologies

Operational/Implementation Models



- Develop cold chain product servicing maintenance infrastructure with knowledgeable technical personnel in local markets, particularly for retail solutions
- Revamp operational models to focus on aggregators/cooperatives/off-takers who can easily build a use-case for cooling solutions with proper change management considerations
- Increase use cases of cold rooms for farmers by incorporating the ability to cool human and animal vaccines
- Use existing farmer groups and cooperatives as an entry approach to reach the farmers
- Work out how cold chain actors can also leverage carbon credits in their operation models

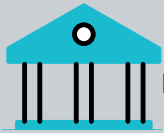
Financing Mechanisms



- Model financing around a farmer's willingness and ability to pay
- Enhance consumer awareness on various financing instruments and solutions
- Incentivize financing solutions by making them more affordable
- Financiers should consider manufacturer buy-back guarantees, servicing & repair agreements over product lifetimes, product insurance and check-off agreements – lenders should accept cold storage units as collateral when offering farmers loans
- Access to affordable debt & equity investments for technology and service providers is needed but the sector is still relatively young and finance needs are diverse
- The role of local versus foreign currency debt emerged as a significant challenge in other sectors due to exchange rate volatility and fluctuations. These lessons should be considered early on and learned from when developing financing solutions for the cold chains

WORKSHOP OUTCOMES

The Role of Public Sector



- Subsize cold chain startups to lower cost of operation
- Facilitate structured policy dialogue that evaluates the whole agricultural value chain by balancing regulation, incentives, and punitive action
- Establish relevant cooling standards that reflect the market context
- Facilitate collaboration between cold chain stakeholders and the government to support the development of friendly policies that can advance the cold chain sector
- Enhance training and certification to increase local capacity to maintain cold chains and cooling equipment
- Lower importation duties or zero-rate cooling equipment and conduct consumer awareness on relevant policies relating to cooling
- Mainstream cold chain infrastructure in rural settings in collaboration with the private sector

PICTORIAL



CAPTION: Stakeholders pose for a group photo after successfully concluding the Cold Chain Stakeholders Workshop on 27 May 2022 in Nairobi, Kenya.

LOOKING BACK

Efficiency for Access and ESMAP Cooling teams have supported the following initiatives to build markets at the first mile for smallholder farmers:



The [Global LEAP Awards Off-Grid Cold Chain Challenge](#) is an international competition that identifies and promotes the most energy-efficient, sustainable, and cost-effective technologies designed for use by smallholder farmers and producers that can meet cold storage requirements for fresh fruits, vegetables, fish, and dairy products. The first competition was held in 2019 and identified four finalists.



The [Efficiency for Access Research & Development Fund](#) aims to accelerate innovation in off- and weak-grid appliance technologies. To date, it has launched three calls for applications, including a call focused on cooling in 2019. 17 cooling-related R&D projects have received approximately support of £2.6 million. The cooling portfolio is diverse, from small-scale refrigeration to medium-sized ice makers, to large walk-in cold rooms. Projects have had a broad focus, from technology development to business model innovations.



The World Bank's ESMAP program provided:

- Technical assistance (grants and in-kind support) to Comoros, Ethiopia, South Sudan, Malawi, Zimbabwe, Somalia, Niger, Sao Tome, and Principe, Philippines, and Mongolia) for the deployment of climate-friendly cold chains in response to COVID-19.
- Technical assistance (grants and in-kind support) to Bangladesh, Rwanda, Malawi, Mexico, India, Guatemala, and India for the deployment of climate-friendly cold chains in the agriculture sector (e.g., horticulture, dairy, livestock, fisheries) to enhance food safety and security.
- [Mobilized USD 157 million in climate financing through the Green Climate Fund](#) - one of the world's first initiatives to focus on cooling, which will help developing countries mainstream low-carbon and inclusive cooling solutions in the health, agriculture, and space cooling sectors. This includes Somalia, Sao Tome and Principe, and El Salvador for health Kenya and Malawi for agriculture.

LOOKING AHEAD

Participants agreed to formulate a working group to encourage collaboration and knowledge sharing. Efficiency for Access and ESMAP teams have the following ongoing and upcoming cooling initiatives:

- Announcement of the 2022 Global LEAP Off-Grid Cold Chain Challenge product winners, finalists and lessons learned report from the competition process
- Publication of learning reports from the Efficiency for Access Research & Development Fund, including projects active in Kenya
- Publication of the Efficiency for Access Cold Chain Market Assessment Reports for Kenya, India, and Nigeria
- Off- and weak-grid cooling and cold chain workshops which will be convened by Efficiency for Access, ESMAP, and the African Center of Excellence in Sustainable Cooling and Cold Chain, following the [Global Off-Grid Solar Forum & Expo](#), to be held on 18-20 October, 2022 in Kigali, Rwanda
- Publication of the ESMAP-funded practical guidelines for the design, installation, and operation of walk-in cold rooms for use in developing countries under development by the International Institute for Refrigeration
- Multiple knowledge products are under development. These knowledge products will:
 - i. Showcase the nexus between energy access and cooling
 - ii. Develop a guide for the Design and Operation of Walk-in Cold Rooms for food in hot climates for off-grid and weak grid situations
 - iii. Provide guidance on the deployment of cold chains for COVID-19 response taking into account important considerations such as climate resilience, monitoring, and private sector participation.

ABOUT US

Efficiency for Access

[Efficiency for Access](#) is a global coalition promoting energy efficiency as a potent catalyst in clean energy access efforts. Since its founding in 2015, Efficiency for Access has grown from a year-long call to action and collaborative effort by Global LEAP and Sustainable Energy for All to a coalition of 20 donor organisations. Coalition programmes aim to scale up markets and reduce prices for super-efficient, off- and weak-grid appropriate products, support technological innovation, and improve sector coordination. Current Efficiency for Access Coalition members lead programmes and initiatives spanning three continents, 62 countries, and 34 key technologies.

For more information, please contact info@efficiencyforaccess.org.

ESMAP

ESMAP's Efficient and Clean Cooling program addresses key sustainable development challenges of providing access to cooling while minimising negative climate impacts, with the aim of accelerating the uptake of sustainable cooling solutions across sectors such as: buildings, healthcare, agriculture, and fisheries. The initiative seeks to mainstream efficient, clean cooling in relevant World Bank operations and to help countries build capacity and develop the necessary enabling environment, financing mechanisms, and policies and regulations to deploy sustainable cooling at scale, focusing on (i) space cooling and green/cool surfaces (including passive cooling strategies in the built environment, cooling equipment, and systems; building automation and controls, as well as solar and vegetative roofs and walls); (ii) refrigeration, cold chains and logistics, including refrigeration, storage, and distribution activities; and (iii) the mitigation of urban heat island effects. ESMAP's program activities take an [integrated approach for promoting sustainable cooling](#).

The program has also developed a [Cooling Facility](#), through which GCF funds will be channelled, and which is one of the world's first multi-country financing initiatives to focus on cooling. It will seek to help countries develop the necessary market infrastructure, financing mechanisms, and policies and regulations to deploy clean cooling at scale. It will focus on space cooling (i.e., energy efficient buildings and appliances), as well as refrigeration and cold chains for agriculture and health.

For more information, please visit the [ESMAP website](#) or reach out to Lucie Blyth (ESMAP Media Contact Person) via lblyth1@worldbankgroup.org.

