



Scaling Up Super ESCO-Led Cold Chain Solutions for Agriculture in India

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Context

Cold chains can boost farmer incomes and reduce losses, but most smallholders lack direct access to cold storage facilities



Agriculture is a critical pillar of India's economy

- Contributing ~20% of GDP and providing livelihood to 44% of population
- Largest producer of milk and dairy products
- 2nd largest producer of fruits and vegetables, fish

However, most farmers lack access to cold chain solutions

- Smallholder farmers rarely access cold storage directly; these facilities are mostly used by intermediaries
- Traditional cold chain infrastructure is located far from the farm gate
- Only 4% of the country's produce benefits from cold chain systems, ~30% of fruits and vegetables are lost
- Only 1% of India's horticulture produce is exported

Emerging Solutions and Challenges

Solar-powered micro cold storages have emerged as a promising solution but they face some barriers



Closer to the Farm Gate: Decentralized units bring cold storage

directly to farmers, improving access.



Energy Independence: Operate off-grid using solar, ideal for remote and power-deficient areas

Scalable and Modular: Can be tailored to local needs and expanded as demand grows

Improved Farmer Incomes: Enable farmers to store and sell produce at better market prices.

2%

High Upfront Costs: Initial investment often unaffordable for smallholder farmers or group

Lack of business models: Without integrated logistics and market linkages, commercial models are unviable

Access to Financing: Traditional lenders view them as high-risk.

Low Awareness & Technical Know-How: Most stakeholders are unaware of such solutions or lack the skills to operate and maintain them.

The Project

Collaborative Effort to Unlock Solar Cold Storages: CLASP, EESL, ADB & Rural livelihood organizations



 Capacity building, and curation of training resources

Operating model

EESL (Super ESCo) Anchored Project (Pilot) implementation



End user

Financial model

EESL - Led Demand Aggregation Halved the Cost of Solar Micro Cold Storages



Future Pathway

Build Ecosystem for Scaling up Sustainable Cold Chains



Pilot Evaluation

- Documenting learnings
- Enhancing business and financial models based on learnings
- Generating evidence for scale up

Business Planning for End users to build case for Scale up

- Partnership with academic institute(s) to develop a set of business proposal for the scaled deployment
- Explore anchor consumers such as cooperatives, Agri business



Catalyze private/public finance

- Develop a model to seamlessly integrate government subsidies to reduce the total system cost.
- Explore Scale up model via private investors / impact investors

