FOOD SAVED IS AS IMPORTANT AS FOOD PRODUCED

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In collaboration with
the AgriTech Sector Team,
UK Dept for International Trade
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In collaboration with
Department for International Trade
In India, despite sufficient and surplus production:

- under-nutrition prevails causing ~70% of deaths of children under-5 in India.
- 50% of India’s employment is agriculture-dependent.
  - Farm-households earn < $1,500 annually;
  - 12,000 farmers committed suicide each year (2013 -2016).

Food saved is an important as food produced
Holistic approach to sustainable market connectivity

Post-harvest handling of Fresh Farm Produce

Holding Life (useful Life Span of Produce)

- The useful or holding life is extended in the cold-chain which should be used to improve shelf life, i.e., longer presence on shelf.
- Holding life in storage is not equal to shelf life.

Without cold-chain, the marketable life span is compressed, limiting market range.
The inability to connect with markets leads to eventual food loss, nullifying any productivity gains at farms.

Pawanexh Kohli, NCCD

<table>
<thead>
<tr>
<th>Cold-chain Component</th>
<th>Requirement</th>
<th>Created</th>
<th>Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pack-house (MT)</td>
<td>11,21,274</td>
<td>3,984</td>
<td>97%</td>
</tr>
<tr>
<td>Cold storage (Bulk) (MT)</td>
<td>3,41,64,411</td>
<td>31,823,700</td>
<td>9%</td>
</tr>
<tr>
<td>Cold storage (Hub) (MT)</td>
<td>9,36,251</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reefer transport (MT)</td>
<td>4,94,608</td>
<td>72,000</td>
<td>85%</td>
</tr>
<tr>
<td>Ripening chamber (MT)</td>
<td>91,306</td>
<td>8,120</td>
<td>91%</td>
</tr>
</tbody>
</table>
**but ....** How do you create the local and global “field to fork” connectivity to nutritiously feed 10bn people sustainably from hundreds of millions of small-scale farmers whose livelihoods and well-being are often dependent on only 1-2 hectares, as well as ensure they are climate change adaptation ready and resilient .... all without using fossil fuels?
Holistic approach to sustainable market connectivity

Deliver on all three pillars of sustainability – Social, Economic, Environmental

- Nutrition for all
- Economically empower small and marginal farmers
- Zero carbon and no pollution

Business Incubator

Digital Transformation

Pre-harvest/Harvest Quality Assurance

Sustainable Energy and Zero Carbon

Process and Packing

Post-harvest handling, storage and quality

Distribution and Cold-chain
A multi-zone comprehensive one-stop showcase Centre of Excellence for state-of-the-art knowledge transfer along the fork-to-farm-to-fork continuum:

- Preharvest and Harvest Quality and Handling Zone
- Postharvest Handling, Storage, Quality, Process and Packing Zone
- Distribution and Cold-Chain Zone
- Business Start-Ups and Incubation Suite
- Training, Conference and Referral Suite
- Laboratories and Test Zones
- Model Packhouse and Demonstration
- Postharvest Training and Services Units (PTSU)
Economically empowering farmers sustainably

- Demonstrate bundles of *sustainable* technology working from end to end and within a system/hub.
- Demonstrate affordable business and funding models and show the economic value back to the community.
- Provide the training and business incubation hub incl. trainer the trainer.
- Share knowledge on improved technologies, business, marketing, etc.
- Define the research and development needs of new *market-driven* clean cooling technologies and thermal energy storage solutions.
- Engage the key external communities – policy, funding, retail/market industry.
A basis for growth – national and internationally

A Replicable, Localisable and Globally Scalable model
Postharvest Management and Cold-chain Hub

Impact demonstration, technical and business assistance, capacity building and incubator. Also to include innovation and research centre for product and service development as well as engagement with supply chain for knowledge transfer, conferences and training.

Using a Hub and spoke model, cascade secondary centres into other States of India to provide near to market demonstration, technical and business support and technical assistance.

Using a twinning model, International Centres of Excellences (Africa, South America, rest of Asia) which can create a global community of knowledge creation and again using a Hub and spoke model cascade secondary centres into their markets.

Phase 1 CoE

Phase 2 Other States

Phase 3 Africa/etc etc

18 Months Design and Build
18 Months Operational
From Year 3 Self-sufficient Replication

Energy

Incubator/ Training/ Workshop & small conference / referral facilities and Offices

Simulation and Modelling including Virtual Twin to support optimised design

In-field trials / Demonstration Structures

Demonstration Sheds/Labs /Quality Centre

A Replicable, Localisable and Globally Scalable model
Postharvest Management and Cold-chain Hub

18 Months Design and Build
18 Months Operational
From Year 3 Self-sufficient Replication
Benefits to UK Business

- Adaptation/development of equipment for local markets and needs.
- Brokerage and introductions between companies and end users with associated advice and support on use of equipment.
- Research, localisation and market intelligence services;
- Enhanced market awareness
- Integrated in robust PHM and cold-chain networks design
- Technology demonstration centre and proving ground
- Underpinned by business model and financing
- Underpinned by the skills and education capacity building
- Establishing the innovation pipeline
- Support with market entry and direct access to FPOs and farmers
- Access to Grant funding for projects
FOOD SAVED IS AS IMPORTANT AS FOOD PRODUCED
Delivers against the key pillars of sustainability

Resilient Nutrition
supply safe, nutritious food to consumers to improve diets and nutrition.

Economically empowered Farmers
effective basis for agri-business and generation of decent employment, in particular for rural women and youth.

Renewable energy and Zero Carbon
Leapfrogging new build PHM and cold-chains to integrate sustainable lower-GWP & energy efficient technologies.

Natural Resources
Utilize natural resources (water, seeds, fertiliser, land, etc). in a sustainable manner, including through climate change adaptation and mitigation measures.

for further information
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