India Perspective

The cold-chain imperative
Food saved is as important as food produced

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Identifying the Problem

Figure 1: Core inefficiencies in the post-harvest value chain leading to PHL

Source: Intellecap
Comparison with Agri Value chains in Developed Countries

India

80% SMALL HOLDERS
20% LARGE HOLDERS

VS

Developed Countries

80% LARGE HOLDERS
20% SMALL HOLDERS

*for illustration purposes only
Decision making for Farmers

WHEN TO (HARVEST):

PLAN

GROW

SELL

WHAT TO:

Developed Countries

• Organized Retail Chain – i.e. farm-gate packhouses, distribution centers, supermarkets
• Large data on consumer transactions - i.e. digital transactions (barcoded)
• Accurate demand prediction

VS

India

• Unorganized Retail Chain – i.e. pushcarts, mandis, mom & pop shops
• No data on consumer transactions – i.e. cash transactions
• No accurate demand prediction
Fork-to-Farm-to-Fork Economics

\[
\text{Income} = \text{Quantity} \times \text{Price} - \text{Costs}
\]

**PLAN**
- **(Quantity)**
  - Yields
  - Area under cultivation
  - Precision farming

**GROW**
- **(Costs)**
  - Agri-inputs
  - Labour
  - Post-harvest loss

**SELL**
- **(Price)**
  - Quality
  - Market linkage (logistics)
  - Sorting & grading

Pre-harvest solutions

Packhouse

Post-harvest management
Packhouse as a Service Model

Designed to help significantly **reduce operating costs** of companies engaged in the business of **end-to-end supply chain** of fruits and vegetables on a wholesale and/or retail basis.

(FARM) (Packhouse)

- Village-based collection centers
- Cheaper labour costs for sorting & grading
- Direct sourcing from farmers
- Pre-cooling & aggregation

(First-mile distribution)

(FORK)

- City-based collection centers
- High labour costs for sorting & grading
- Limited sourcing from farmers mostly from Mandis

(Last-mile distribution)

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Impact – Help smallholder farmers increase income

Level needed to double farmer’s income

Current income
Income increase
Potential new income

Estimated income per average farmer in 2017/18 from conventional farming of grains and pulses in Impagro’s pilot project location

Conventional farming
10% land used for vegetables
Access to cold storage to reduce losses
Use of precision farming to improve vegetable yields
Access to higher priced markets
Premium for sorting/grading
Adoption of precision farming in other crops
New income
A block or a community development block is a district subdivision for the purpose of rural development department consisting of a cluster of villages.

Divisions are made of group of districts. Divisional capitals are cities/large towns.
Addressing the UN SDGs

1. **No Poverty**
   - Increasing farmer incomes and driving rural economic development

2. **Zero Hunger**
   - Increasing the volume of food supply by reducing post-harvest loss

5. **Gender Equality**
   - Promoting equal pay for both men and women

7. **Affordable and Clean Energy**
   - Developing affordable, energy-efficient, solar powered cooling hubs

8. **Decent Work and Economic Growth**
   - Creating employment opportunities in rural villages and economic growth through increased farmer incomes

13. **Climate Action**
    - Promoting technologies to help reduce carbon emissions
Thank you!

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