Business opportunities in cold-chain development

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Background

- Government of India’s motivation to double the farmers’ income while taking the farm produce to the market with the right quality and yield - Improved efficiencies in the entire supply chain is critical.

- Cold-chains need an essential push through environmentally benign policies, access to finance and technology innovations leading to higher holding life for the produce – most importantly benefits to the farmers are most essential!

- MP Ensystems is working with the Shakti Sustainable Energy Foundation (Shakti Foundation) and University of Birmingham (and UKTI) as a collaborator to promote energy efficient and clean cold-chains.

- Other partners in the project include: Technology providers, Research Institutes, Farmers Producers Organizations, Financing Institutions (NABARD and NABCONS)

- Research project scope includes: Rapid assessment of energy and environmental footprints, Techno-economic assessment, technology vision and assessment of financing and implementation options

- Other activities such as National Cooling Action Plan (NCAP) attempted projecting numbers related to cold-chain use
Cold-Chain: Demand Projections

Pack-Houses (Unit):
- 2017-18: 550
- 2022-23: 20000
- 2027-28: 60000
- 2037-38: 150000

Ripening (Unit):
- 2017-18: 1100
- 2022-23: 3500
- 2027-28: 9500
- 2037-38: 15000

Cold Storage (Million MT):
- 2017-18: 35
- 2022-23: 41
- 2027-28: 44
- 2037-38: 50

Commercial Refrigerator (Million TK):
- 2017-18: 8.4
- 2022-23: 12
- 2027-28: 18.3
- 2037-38: 50

Domestic Refrigerator (Million Units):
- 2017-18: 100
- 2022-23: 133
- 2027-28: 178
- 2037-38: 318

Systems-level thinking at the core of this assessment.
Field exploration spread over 4 states in India

- Government (State and National) officials from agriculture, horticulture, electricity, renewable energy, energy efficiency and water resources departments;

- Interviewed small and large farmers’ producers’ companies and member farmers (primarily fruits and vegetables growers) including women farmers;

- Agri-value-chain start-ups including those run by women entrepreneurs;

- Interactions with Indian and UK technology providers dealing with integrated system designs with a focus of understanding “cooling-as-a-service” through bilateral and deep-dive roundtables
  - Specific Exploration of application of mobile technologies;

- Four leading banks in India providing credit to FPCs, farmers, technology providers; and vii) angel and venture capital fund managers focusing on agri-value-chains
Technology assessment

- Suitability (Serves the purpose/ Fit-for-use and fit-for-market)
- Adoptability (Convergence of social, economic and technology)
- Sustainability (Environment, Social, Governance)
- Transition (timelines)
Technical-social-economic assessment

Carbon impact through the supply-chain and benefits through reduced wastage and connectivity

Direct (refrigeration) and indirect (energy-use (focus on thermal))

Key attributes:
- Farm-to-the-fork and fork-to-the-farm ~ both approaches important
- Equipment and services (IT-enabled triggers to harvest at right time essential)
- Approach includes improving finance-flow to farmers
- Paradigm shift towards services

Increased Income (INR) (farm-gate)
Farms transforming as agri-businesses

Mobile money (IT enabled value creations)

Jointly developed with UoBirmingham
Upcoming report

- Drafting and Peer-review process during November 2018 to middle of January 2019
- Launch session planned in India (middle of February 2019) and U. K. (end of February 2019)
- Next steps:
  - Supporting setting-up of Living Labs with Farmers’ Producers’ Organizations/Companies (FPOs/FPCs)
  - Financing services and equipment businesses – opportunity to leverage funding worth billions of dollars
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[With inputs from Prof. Toby Peters, University of Birmingham]