Tanzania Horticulture Cold Chain

Sustainable Development Through Profit

Eric Trachtenberg
Director, Food & Agriculture

 McLarty Associates
With the global population estimated to reach 9.5 billion by 2075, we need more food.

Around 30–50% (or 1.2–2 billion tons) of all food produced is lost before being consumed:
- Lower farm income
- Higher food prices
- Lower food availability

Post Harvest Losses in Africa are high:
- 20% of grain & 30-50% of horticulture

Example: Tanzania

Sources: Institution of Mechanical Engineers, World Bank, FAO, McKinsey, USDA, UNEP
Agriculture in Tanzania

- Tanzania is located in East Africa
- Population: 44.9 million
- Per Capita GDP: $1,700 (PPP)
- Per Capita GDP growth: 6.5%
- Despite high growth, poverty remains stubbornly high at 33.6%
  - The share of the population consuming insufficient calories is 23.6%
  - 38% of children under 5 stunted
- Agriculture contributes 26.7% of GDP

Sources: CIA, World Bank, United Nations
Agriculture in Tanzania
Agriculture in Tanzania

No country has achieved a significant transformation without modernizing its agriculture.

No country has significantly reduced the poverty of its population without achieving a high level of productivity in agriculture.

The transformation of Tanzania’s agriculture must be the foundation of the country’s socio-economic development.

More food production tames inflation.

Sources: Tanzanian Government, Tanzanian Horticultural Association (TAHA)
Agriculture in Tanzania

- Employs more than 80% of the population
- Contributes 30% of export earnings

**Major Products:**
- Fiber (sisal, cotton)
- Beverages (coffee, tea)
- Sugar
- Edible Oils
- Grains (a diverse range of cereals and legumes)
- Horticulture (temperate and tropical fruits, vegetables and flowers)

Sources: Tanzanian Government, Tanzanian Horticultural Association (TAHA)
Horticulture in Tanzania

- Horticulture production in Tanzania is diverse
  - Includes both tropical and temperate products that include citrus, mangoes, papaya, tomatoes, onions, cabbages, and vegetables
- The use of improved seed, fertilizer and chemicals is generally low
  - Average yields around only 50% of potential
- Exports and processed product channels are underdeveloped
  - 90% of fruit & vegetables sold fresh

Sources: Tanzanian Government, Tanzanian Horticultural Association (TAHA)
Post-harvest losses are around 30-40% of horticultural production

There is no true supply chain:
- Lack of cooling after harvest & cold storage
- Lack of refrigerated transport
- Little or no infrastructure
- Lack of consistent electricity
- Problem worst in wet season when road conditions are poor and crops exposed to elements

Sources: Tanzanian Government, Tanzanian Horticultural Association (TAHA)
Farm incomes are low because of:
- High post-harvest losses
- Low yields
- Many middlemen

Low production reduces farm income, increases prices and cuts food supplies
- Example: Farmers sell green beans on the side of the road instead of supermarkets or export markets
- Result: Much lower prices
Cold Chain Project

- Locally suitable equipment & capital
  - Cooling equipment / post-harvest
  - Energy solutions
- Management training
  - Cold chain is not just equipment
- Government policy support
- Supporting network/institutions
Cold Chain Project

Different Actors...

- Transport
- Storage
- Market Linkages
- Finance
- Technology
- Other Networks
- Business Services
Public Private Partnership (PPP)

Public/Donors

- Public Goods – infrastructure, public policy, seed capital, education and health

Private Sector

- Profit Drives Sustainability – investment in technology, scaling production, food processing/value added, finding local and overseas markets for products

Key: Markets willing to pay

- Sourcing for local/global markets
Cold Chain Project

Sample list of current & potential partners:
- Tanzania Horticultural Association (TAHA)
- Major Global Agbusiness Firms
- US Agency for International Development
- US Department of Agriculture
- Fintrac
- German Marshall Fund (GMF)
- Global Cold Chain Alliance
Cold Chain Project

Results of past cooperation & investment...
Cold Chain Project

Horticulture distribution – field to market

Intervention

Sources: Adapted from Webber and Labaste, 2011
Cold Chain Project

- Cold chain technologies?

Credits: Nanolce, GCCA, Ingersoll-Rand, University of North Carolina
Cold Chain Project

Project flow overview

- Review Sector & Identify Need and Markets
- Identify Stakeholders & Local Partners
- Initial Interviews and Studies
- Pilot Project Design and Capitalization
- Technical Feasibility Studies
- Technology Evaluation
- Execute & Evaluate Pilot
- Increase Scale of Project
- Execute & Evaluate Project
Cold Chain Goals

- Cold chain is only part of the solution to productivity issue
  - Infrastructure (roads and power)
  - Supportive policy (trade, taxes and regulation)
  - Access to credit and technology
  - Many other parts to the equation
- Part of a way to liberate value of agriculture
- Improve incomes
- Feed Africa
- Feed the World
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