



FOOD WASTE & SPOILAGE

**THE FIRST INTERNATIONAL POSTHARVEST LOSS CONGRESS
4TH – 7TH OCTOBER 2015**

Presentation by:

C.D. Glin, Associate Director – The Rockefeller Foundation

Food Loss is a Large and Urgent Problem That Presents a Clear Opportunity for Impact

The Global Problem Is Significant



15% income reduction for 470M smallholder farmers



1.6B could be fed with food lost each year



25% of freshwater and 20% farmland wasted on unconsumed food

Post-Harvest Loss Is Particularly Acute in Sub-Saharan Africa



50%

of fruits and vegetables



40%

of roots and tubers



20%

of cereals

Opportunity

Market dynamism in the food system coupled with changing consumer preferences and rising incomes is leading large buyers to seek ways to *responsibly source* from local SHFs

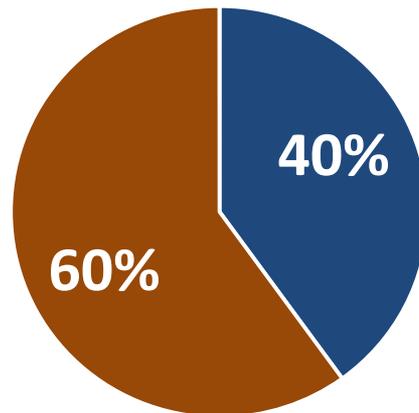


- Large purchasers of food crops will likely increase local sourcing to improve access to supply
- RF can help them by including SHFs in their value chains **while also addressing PHL and maximizing positive impacts for rural lives, food security and natural resources**
- RF will intervene in a representative set of value chains to demonstrate the value proposition of the model in catalysing system change

Case Study: Mango Value Chain in Kenya



Total Loss



- Remaining total harvested product
- Cumulative post-harvest loss



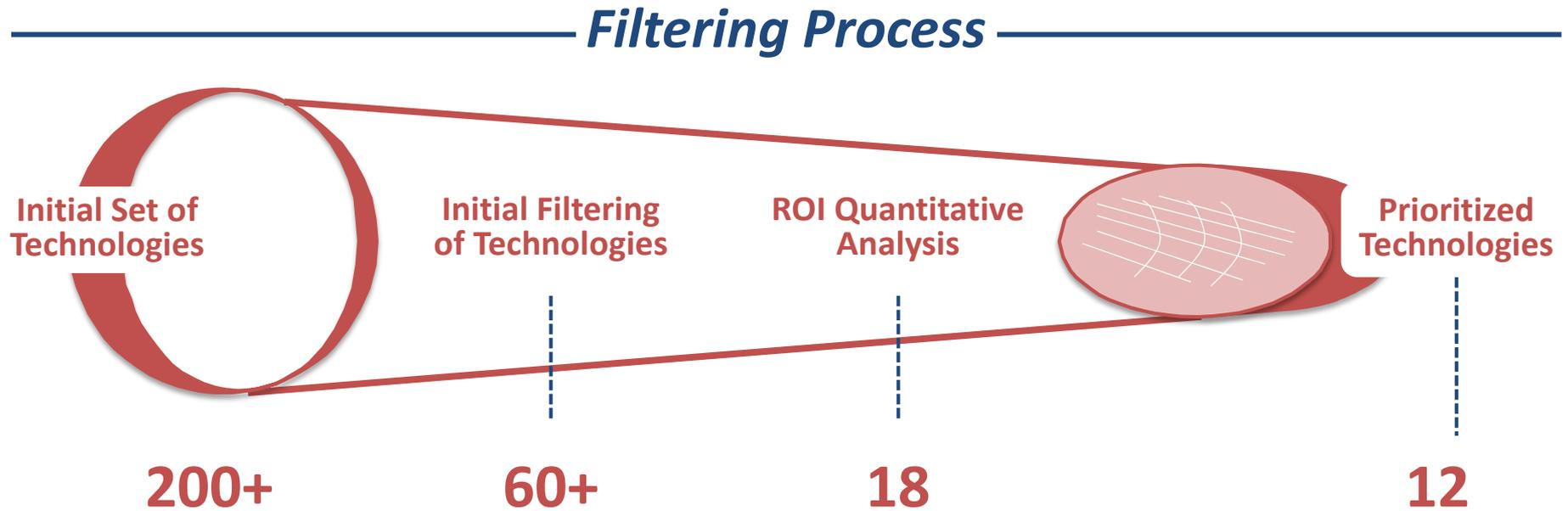
The smallholder farmer

“When I harvested the 10 sacks, the price was so low a buyer wanted to buy 17 Kilos for 100 shillings which was a loss. I refused to take their prices. The potatoes went bad and were wasted.”

— Sella, smallholder farmer



We conducted an analysis on the existing loss-reducing technologies,



Technologies prioritized based on potential to (a) reduce loss, (b) deliver impact within our Issue Areas



Illustrative examples of high-ROI technologies

Hermetic Bags (Super Grain & PICS)



Metal/Plastic Silos



Heavy Molded Plastic Crates



Mobile Processing Units





We Have Developed a Strategy with Four Components

The key to Rockefeller's innovation is to integrate four components to significantly reduce PHL and drive long-term, sustainable impact at scale.



TECHNOLOGIES

- Distribution and utilization of loss-reducing **technologies** for improving handling, storage and processing of crops (many of which exist today).
- In some instances, we see opportunities for supporting targeted **breakthrough innovative technologies** in specific value chains (e.g., cold storage).



MARKET DEMAND + LINKAGES

- Linking **large anchor buyers** demand for fresh and processed crops to smallholder supply and local **alternative markets** to excess crops
- Linkages can include traditional market relationships or newer procurement and sourcing arrangements.



SHF TRAINING & AGGREGATION

- **Aggregation of SHFs** into farmer groups is essential to meet the quantity, quality and consistency of requirements of buyers
- **Capacity-building and other adoption measures** are important to ensure SHFs uptake technology and other interventions.



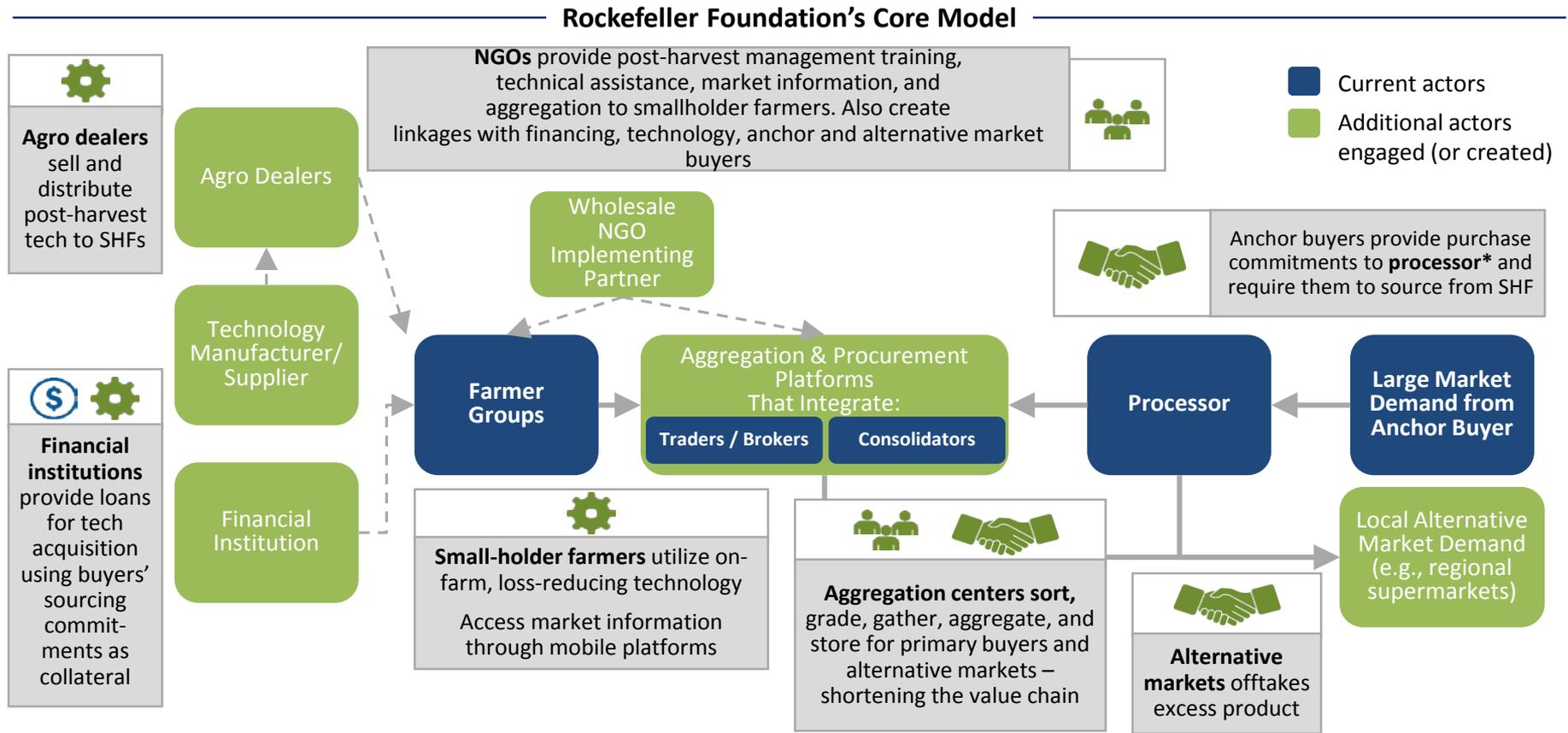
FINANCING

- **Financing** will generally be required to facilitate manufacturing, distribution and acquisition and adoption of technologies e.g. loans and leasing models.
- **Investment capital** is also required to fund the scale-up of promising technologies and innovative distribution models.

Prior post-harvest loss interventions have failed by only deploying one or two of these components in isolation. This process innovation is a unique approach which recombines existing elements to generate outsized impact.

Our Model for Intervention Introduces the Key Components at Targeted Points in the Value Chain

Leveraging the four components, RF has developed a model to intervene in value chains and reduce PHL.

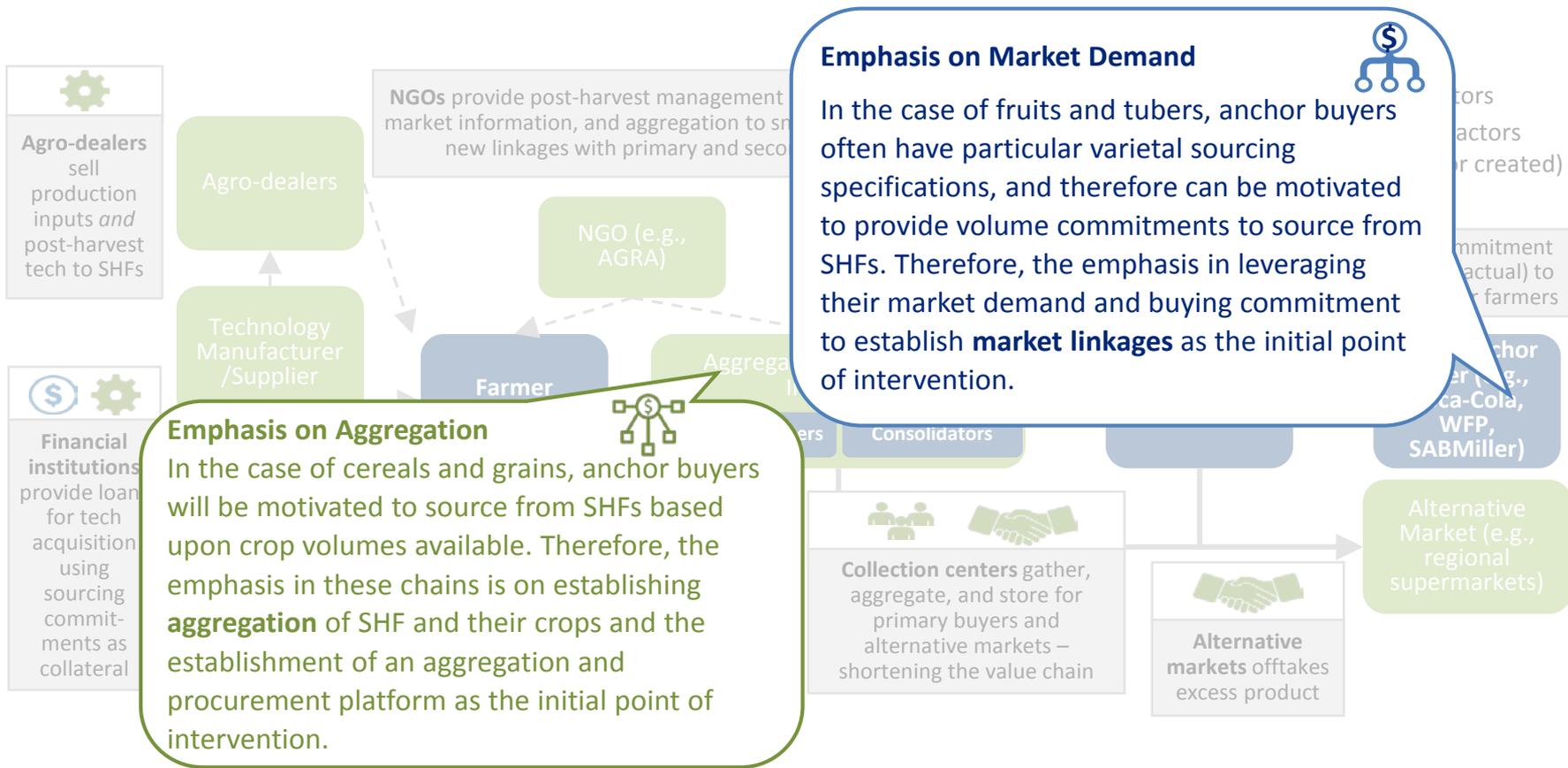


Note: *In value chains with no processing, buyer engages directly with farmer groups or collection centers.

The Model has Two Basic Applications That Maximize Impact for Different Crop Categories

While the integration of the four components is the core of our intervention model, the incentives for key players to intervene varies for fruits and tubers versus cereals and grains. As a result, we plan to emphasize different components of the model and apply it differently for these two crop categories.

Rockefeller Foundation's Core Model





Minimum Thresholds

Significant crop loss	Product can be sourced from SHFs	Potential for market linkages
Willing and able partners	Supportive enabling environment	High leverage—builds on existing infrastructure

Potential First Wave

- Diverse and representative portfolio
- Short timespan to “proof points”
- Replicable and influential models
- Leverages AGRA’s assets
- Multi-nationals committed to model

We Believe This Model Creates a Compelling Value Proposition for Key Actors

Farmers & Rural Populations

- Increased and reliable income from greater volume sold and higher prices (due to improved quality and more control over timing of sale).
- Potential to contribute to increased availability of safe, nutritious food in local markets and increased local economic growth
- Potential to diversify incomes by generating off farm employment opportunities due to access to tech

Large Anchor Buyers (private, public, gov't)

- Access to more reliable, higher quality product to meet current and growing sourcing requirements from consumers and citizens.
- Helps private sector companies deliver on sustainable and local sourcing commitments – and minimize unintended consequences.
- Allows public and local alternative markets to source locally
- Enhances level of accountability, transparency and efficiency in their value chains

Processors

- More consistent volume and quality to meet growing buyer demand.
- Strengthen long-term relationships and agreements with large buyers.
- Facilitated connection to local markets.
- Enhances level of accountability, transparency and efficiency in their value chains
- Reduces information asymmetry of throughput i.e. availability of supply

Agro-dealers and Technology Manufacturers

- Expanded customer base among farmers and other value chain actors.
- Potential capital for adaptation and scale-up.
- New product development or expanded product offering
- New capacity building and skills

Traders/Brokers (Now Integrated Into Aggregation Procurement Platforms)

- More consistent volume and quality to meet growing buyer demand.
- Opportunity to adopt new business model as service providers.
- Access to technology, finance and capacity-building that increases their competitiveness.
- More efficiency gains (time and transport) via aggregation and shortened supply chain

Financial Institutions

- Breadth and depth of services with the addition of financial products that support PHL reduction
- Expanded customer base
- Development of deeper relations with current clients
- New product development to enhance lending financing



Secure Livelihoods

- ✓ Improvement in SHF income
- ✓ Improved consistency of incomes
- ✓ Increased incomes across the value chain



Advance Health

- ✓ Increased availability of nutritious products in the market
- ✓ Improved dietary diversity of consumers
- ✓ Reduction in toxins hitting the market



Revalue Ecosystems

- ✓ Improved water use
- ✓ Improved agricultural land use
- ✓ Reduction in greenhouse gas emissions