



Food Waste and Spoilage Initiative

# COLLABORATION COLLOQUIUM

*After-Action Report*

3-4 February 2015 • Nairobi, Kenya

Supported by:



Designed by:



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### Note to readers:

This report provides information on the Food Waste and Spoilage initiative Collaboration Colloquium, hosted in 3-4 February, 2015 in Nairobi, Kenya. Because the event produced a substantial number of high quality outputs, we have divided this document into two parts. Part I includes a summary of the event itself, as well as outputs from the event's first day. Part II, titled "The Food Waste and Spoilage Innovators' Storybook," focuses specifically on the Storyboards that participants delivered during the Collaboration Colloquium's culmination. Thus, because of the volume of information, outputs from the Collaboration Colloquium are divided between both documents.

A book that showcases the stories of innovation, developed by teams formed at the Collaboration Colloquium, emerged from this capstone experience that concluded the Social Innovation Lab's process of developing innovative solutions. The storybook introduces a suite of integrated innovations that address specific post harvest loss challenges prioritized by the teams, enhanced with illustrations and evaluations.

# Acknowledgements

The following staff of the Global Knowledge Initiative planned and managed the Food Waste and Spoilage Collaboration Colloquium: Sara E. Farley (Chief Operating Officer and Principal investigator), Amanda L. Rose (Senior Program Officer and Project Manager), Andrew Gerard (Senior Program Officer), and Kathryn J. Bowman (Program Associate), with assistance from Srujana Penumetcha (Consultant).

The Global Knowledge Initiative extends gratitude to the individuals who assisted both in organizing and executing this event. We would like to extend special thanks to Anne Mbaabu and Onesphore Karuho from the Alliance for a Green Revolution in Africa (AGRA) and Helen Mant from the Initiative for Global Development (IGD) for their assistance in identifying Collaboration Colloquium participants. We thank Chamisa Kellogg for her assistance in beautifully illustrating stories told by Collaboration Colloquium teams. We also thank Caleb Metto, Lucy Kiarie, and Justus David (Youth Agency for Development of Science, Technology, and Innovations), and Elizabeth Wakahe and Maria Thuo (Kenyatta University) for their assistance in supporting the facilitation of the Collaboration Colloquium.

The Rockefeller Foundation provided financial support for the Collaboration Colloquium. Specifically, GKI acknowledges the support of C.D. Glin (Africa Regional Office), Olivia Karanja (Africa Regional Office), and Amira Bliss (Innovation Pathway) in this endeavor.



A group of four Black women are gathered around a whiteboard in a meeting. One woman is pointing at a sticky note on the board. The others are looking at the board with interest. The whiteboard is covered with many colorful sticky notes. The scene is brightly lit, and the women are dressed in professional attire.

# Section I: Collaboration Colloquium Summary and Insights

“I feel very empowered at this event—there are a lot of things I learned. The knowledge in this room is enormous.”

- Dr. Anne Mbaabu,  
*Alliance for a Green Revolution  
in Africa (AGRA)*





## Background

Food loss—the loss of edible food at production, post harvest, processing, and distribution stages of the value chain—represents a significant challenge for developing countries. According to the World Resources Institute, approximately 23% of available food in Sub-Saharan Africa is lost or wasted (WRI 2013). Especially dire in developing countries, the burden of food loss is particularly high for smallholder farmers. Food loss reduces the income of approximately 470 million farmers and other value chain actors by as much as 15% (The Rockefeller Foundation 2013). A number of promising approaches to reducing food loss already exist, but issues related to access, affordability, adoption, and awareness of these practices and technologies inhibit their ability to render an impact at scale. Against this backdrop, The Rockefeller Foundation launched its *Food Waste and Spoilage initiative* in 2013. The initiative aims to identify integrated, innovative solutions to the food loss challenge—specifically challenges related to post harvest loss (PHL)—that have the potential for impact at scale.

Grappling with the integrated nature of the PHL challenge is an essential part of designing innovative solution sets positioned to deliver sustainable impact at scale. Without facing this reality head-on—and developing integrated, network-based approaches to problem solving—it will be difficult or impossible to deliver the desired economic, nutritional, and environmental benefits. Moreover, stakeholders may miss opportunities to identify linkages between existing resources and efforts to reduce PHL. For these reasons, the Global Knowledge Initiative (GKI), a not for profit organization with the mission to build problem solving networks that use science, technology and innovation to deliver transformative solutions, took a series of steps to (1) develop innovative, vetted options for integrated solutions poised to significantly reduce food loss in Africa, and (2) create a vibrant network of stakeholders poised to take forward these solutions. Annex I offers additional information on GKI.

Equal parts problem framing, strategic research, solution design, and innovation generator, the work performed by GKI is that of a [Social Innovation Lab](#). The *Food Waste and Spoilage initiative*, like other Rockefeller Foundation initiatives, sought a Social Innovation Lab to orient design, decision making, and network formation toward innovation. Four activities comprised GKI's [Social Innovation Lab approach](#). A first step included a [6-country-wide problem framing exercise](#) in which more than 120 actors in the food value chain collectively mapped the many opportunities for and barriers to reducing PHL in Africa. Upon framing the problem, GKI's second step was to assess the resources available and needed to seize the top opportunities identified through problem framing sessions, producing 26 profiles of post harvest efforts taking place across Africa. International PHL stakeholders then met in Cape Town, South Africa to envision creative solutions for mitigating the challenge in light of high-priority opportunities and available resources. Building off of these steps, and representing the fourth and final step in GKI's efforts as a Social Innovation Lab on this challenge, the Collaboration Colloquium occurred in Nairobi 3-4 February, 2015.

## The Collaboration Colloquium

The challenge of post harvest food loss represents a confounding paradox. On one hand, many approaches for reducing PHL are quite rudimentary and well-known by the international community. Examples include ensuring proper handling of and providing shade cover for perishable crops. On the other hand, PHL remains a persistent challenge, especially in Sub-Saharan Africa.

Why, we might ask, have simple, globally recognized solutions failed to change the PHL equation in Sub-Saharan Africa? The answer lies primarily in the fact that reducing PHL at scale is not about applying known technologies or techniques to a particular point in the agricultural production process. Rather, it requires orchestrating a concert of actions and interactions by millions of people, at multiple points in many value chains, in numerous countries. Many of these actors never come into contact with one another, despite their interdependence; however, each actor influences the agricultural system's ability to reduce PHL for the millions affected by it. Such realizations beckon for ***inclusive problem-solving networks*** that mobilize the full system of actors, resources, interactions, and incentives needed to unleash creative solutions to the PHL challenge. The Collaboration Colloquium aimed to spur these inclusive problem-solving networks, by bringing together actors from across sectors around shared PHL challenges.

## Actions taken at the Collaboration Colloquium

GKI designed the Collaboration Colloquium to connect potential partners, mobilize available resources, and elaborate action plans aimed at delivering innovative solutions to the PHL challenge. Hosted in Nairobi, Kenya on 3-4 February 2015, the Colloquium focused on perishables (fruit, vegetables, and staples such as cassava) because of their importance to diets and the high rates of spoilage within these value chains. The Collaboration Colloquium connected actors from academia, private sector, government, the donor community, and other sectors, as well as participants from the previous phases of the Social Innovation Lab's process (e.g., problem framing, etc.).

The Colloquium opened with a group of carefully selected innovators showcasing the solutions they developed that address key challenges identified through the Social Innovation Lab process as ripe for integrated, multi-sectoral innovation. Using these key challenges as a starting point, participants used a design tool called Challenge Mapping to parse and select six essential, focal challenges, shown below, that require networks to develop and deploy solutions (see page 12 for more on this process).

### Collaboration Colloquium Tools and Outputs:

**Challenge maps:** Participants used Challenge Mapping to visually explore the bottlenecks to, and rationales for, action on key challenges. They used Challenge Mapping to determine six focal challenges that organized their efforts.

**Innovation Diffusion Curves:** Diffusion Curves are visual tools on which participants charted their innovations' possible paths from start-up, to demonstration, to scale. Each working group developed Diffusion Curves for 4 innovations they identified as essential to solving their focal challenge.

**Integrated Innovation Landscapes:** Participants examined the resources and actors they had identified as important to success in their 4 Innovation Diffusion Curves, and created Integrated Innovation Landscapes that listed these resources, delineating resources or actors needed versus available for multiple innovations.

**Stories of Future Impact:** After receiving instructions on storytelling and storyboarding techniques, participants took their integrated innovations, and considered how these innovations might affect the life of a single individual. Using a six panel storyboarding format designed by GKI, participants created stories of future impact for these individuals that they delivered at the Collaboration Colloquium's close.

### Focal Challenges Chosen by Collaboration Colloquium Participants

1. How might we (HMW) formalize markets so farmers can better access financing for storage/ processing/ handling/ preservation technologies?
2. HMW attract more private sector investments for post-harvest technologies?
3. HMW increase infrastructure to build and manage collection centers?
4. HMW improve linkages between scientists, NGOs, producers, buyers, etc. through training and information?
5. How might we aggregate farmers better to share technology services (for processing, handling, storage, preservation)?
6. HMW identify secondary market actors?

## Exploring Opportunities for Innovation

With these focal challenges as a starting point, cross-disciplinary teams worked together to develop integrated sets of innovations that could create impact at scale. To do this, first each team created four distinct “Innovation Diffusion Curves,” in which they ideated possible processes from start-up to scale for their innovations (see Innovation Diffusion Curves on page 14). These curves provide detail on the actions, resources, and actors necessary to scale an innovation. After developing these Innovation Diffusion Curves, teams vetted their ideas by sharing them with other groups. This provided teams an opportunity to suggest and offer resources, partners, and critiques that other participants could use to improve the strength of their ideas. Next, teams constructed “Integrated Innovation Landscapes” to portray the resources needed and available to deliver an integrated suite of innovations specific to their focal challenge. The Integrated Innovation Landscapes, reproduced on page 21, provided an opportunity for teams to combine what had been discrete Innovation Diffusion Curves into one integrated picture, and explore what resources they had and needed at a systemic level.

## Telling Stories of Impact

After conducting the difficult analytic work of designing this Integrated Innovation Landscape oriented toward their focal challenges, participants were asked to take a radically different approach: developing stories. Specifically, teams received coaching in how to visualize and narrate a story of the impact possible through their integrated suite of innovations from the perspective of one person (a farmer, a processor, a convener, etc.). How would their proposed innovations affect the life of their key beneficiary? What might this suggest about potential enhancements to their innovation? With the help of illustrator Chamisa Kellogg, teams ended the first day of the Collaboration Colloquium with a rough story of impact at the level of a single, archetypical individual. Over the evening, Chamisa turned these rough sketches into beautiful, illustrated stories. During the second day of the Collaboration Colloquium, teams honed their stories, engaged in a storytellers’ coaching session, and then shared their Stories of Future Impact on the stage in front of the whole group.

The Collaboration Colloquium’s culmination included six inspiring Stories of Future Impact, designed and told by the people who hope to ensure that this impact comes to fruition. Collaboration Colloquium participants from some of Africa’s strongest institutions active in PHL carefully evaluated these stories in terms of feasibility, desirability, viability, and innovativeness, and offered additional resources and advice to support the realization of these ideas. Annex III provides detail on what resources were offered to fuel the success of specific innovations, and who offered them (*to be added*). “The Waste and Spoilage Innovators’ Storybook” offers a compilation of the illustrated stories produced by participants. Additionally, the storybook offers a summary of participants’ evaluations of each team’s work.



The Collaboration Colloquium produced Innovation Diffusion Curves, Integrated Innovation Landscapes bringing together these proposed innovations into a coherent picture, compelling Stories of Future Impact, and new partnerships between individuals working in value chains throughout Africa. At each step of the process, the Colloquium also elicited insights about how networks can work to devise and implement integrated PHL solutions. These key insights, noted below, are organized by the five levers developed for the GKI Resource Assessment. For more granular insights specific to each Story of Future Impact, see the Waste and Spoilage Innovators' Storybook that profiles key insights, innovations and projected impact for each of the six stories developed at the Colloquium.



### Insights, Organized by Lever, Emerging from the Waste and Spoilage Collaboration Colloquium

#### Market Access:

**Market options beyond export beckon for interventions, including production for local markets, and development of alternative markets to off-take excess produce.** For many farmer groups, producing for the export market provides a vital opportunity; however, fluctuations in international prices, strict export standards, and other factors make export-only production challenging. Further, as Africa's domestic consumer base grows both in size and in its ability to purchase high quality food products, farmers, buyers, and other value chain actors observe local demands that can be filled by producing and processing crops directly for the African market. Doing so requires developing systems to market and deliver products to African consumers—such as by contracting with local businesses, establishing delivery models to service local markets, and processing that meets local needs. Similarly, mechanisms must be identified to provide local market outlets for crops that were produced for the world market, but which either outpace demand or do not meet export standards. Strengthening these alternative (or “secondary”) markets requires accurate information on market needs, clear communication channels, strong local standards for produce, and other innovations aimed at developing alternative market outlets for producers and buyers.



**Successfully availing these market opportunities may require the leadership of a number of large “anchor” buyers who commit to encouraging PHL and market innovations through their purchasing activities and influence.** Although innovation and interventions can take place across the entire value chain, some actors have the ability to influence the entire market through their actions—for good or bad. Large buyers, if they commit to purchasing from farmer groups and use their influence to drive investment in post harvest technologies and processes, can have a catalytic effect on market access for actors across the value chain while increasing incomes and reducing PHL.

### Knowledge:

**Both immediate access to data—such as market information—and long term investments in capacity building support numerous innovations in PHL.** The quality of and speed with which value chain actors can access market information will enable or thwart many of the innovations described at the Collaboration Colloquium. Providing value chain actors access to new markets, new transport routes, or the ability to coordinate with a growing number of potential partners or customers requires that they have access to real time information. ICTs and innovative information sharing platforms can help with this, but require intensive planning and capacity building to be effective.

Knowledge is necessary to make real-time financial and logistical decisions, and also in the long term to build the skills necessary for integrated solutions on PHL. Successful professionalization of farmer groups, shared transport and management, effective PHL technology adoption, improved financial management, and a host of other interventions require capacity building for actors across the value chain. This need beckons for innovative models for training delivered through a range of modalities: through collection centers, through partnerships with anchor buyers, through public-private partners, through SMS and online platforms, and more.

### Policy:

**Governments can play a strong role incentivizing value chain actors to aggressively combat PHL through government-backed financial mechanisms, provision and enforcement of standards, development of public-private partnerships, and strategic use of convening power.** While many of the innovations designed during the Collaboration Colloquium are market driven, governments have a unique ability to enhance or stifle these efforts through their policies and actions. Governments can enhance efforts to de-risk investment in PHL by working with potential financiers, facilitating secondary markets through standards development, lowering duties on PHL technologies and inputs, playing the role of a convener for actors across the value chain, and partnering with business and academia to develop mechanisms such as incubators and innovation labs to quickly move new PHL innovations forward.

### Technology:

**PHL technology necessitates other enablers (training, infrastructure, organization, financing), without which technological investments may wield little impact.** Technologies such as mobile processing units, cooling technologies, Gum Arabic, and heavy plastic crates have the capacity to improve the incomes of farmers growing perishables, while also reducing PHL. However, without capacity building, infrastructure, financing, organization, and/or other enablers these technologies will often simply languish unutilized. By integrating technologies for processing, preservation, and transport into structures such as collection centers and well-organized farmer groups, users benefit from technology as a key part of their business model, not as an add-on. Investments in PHL technology must be made in the context

of a suite of services and other enablers. One way to ease access to these enablers is sharing technology through locations such as collection centers, through organizations such as farmer groups, and through shared transportation and logistics schemes.

### **Finance:**

**De-risking farmers so they can access investment from financial institutions requires advocacy and aggregation on the part of farmer groups, as well as conducive policies and programs from government and donors.** For farmer groups to access the financing required to purchase technology, improve collection center infrastructure, and otherwise invest in innovative PHL solutions, financing institutions must accept that these groups represent solid investments. Convincing them of this requires work on the part of farmer groups and their partners (such as NGOs and implementers) to provide data and business plans to financing organizations, which merits effort to build farmers' capacity to develop the necessary business acumen. It also requires support from government and other actors with the capacity to lower the risk of financing. This support can take the form of incentives that lower investors' risk of investment such as insurance on loans, or "pull mechanisms," including advance market purchases that incentivize input suppliers, producers, and other innovators with guarantees for fixed quantities at fixed prices



GKI's Sara Farley (left), AGRA's Dr. Anne Mbaabu (center), and The Rockefeller Foundation's Olivia Karanja (right) offer feedback on the feasibility and novelty of the stories delivered at the Collaboration Colloquium.  
Photo: GKI



# Section II: Collaboration Colloquium Activities and Outputs



“We have realized in these one and a half days that we cannot leave out the people who we really want to impact. PHL begins at the farm—the farmer must be able to contribute to reducing losses.”

—Dr. Lusike Wasilwa,  
Kenya Agricultural and Livestock  
Research Organization



# Challenge Mapping

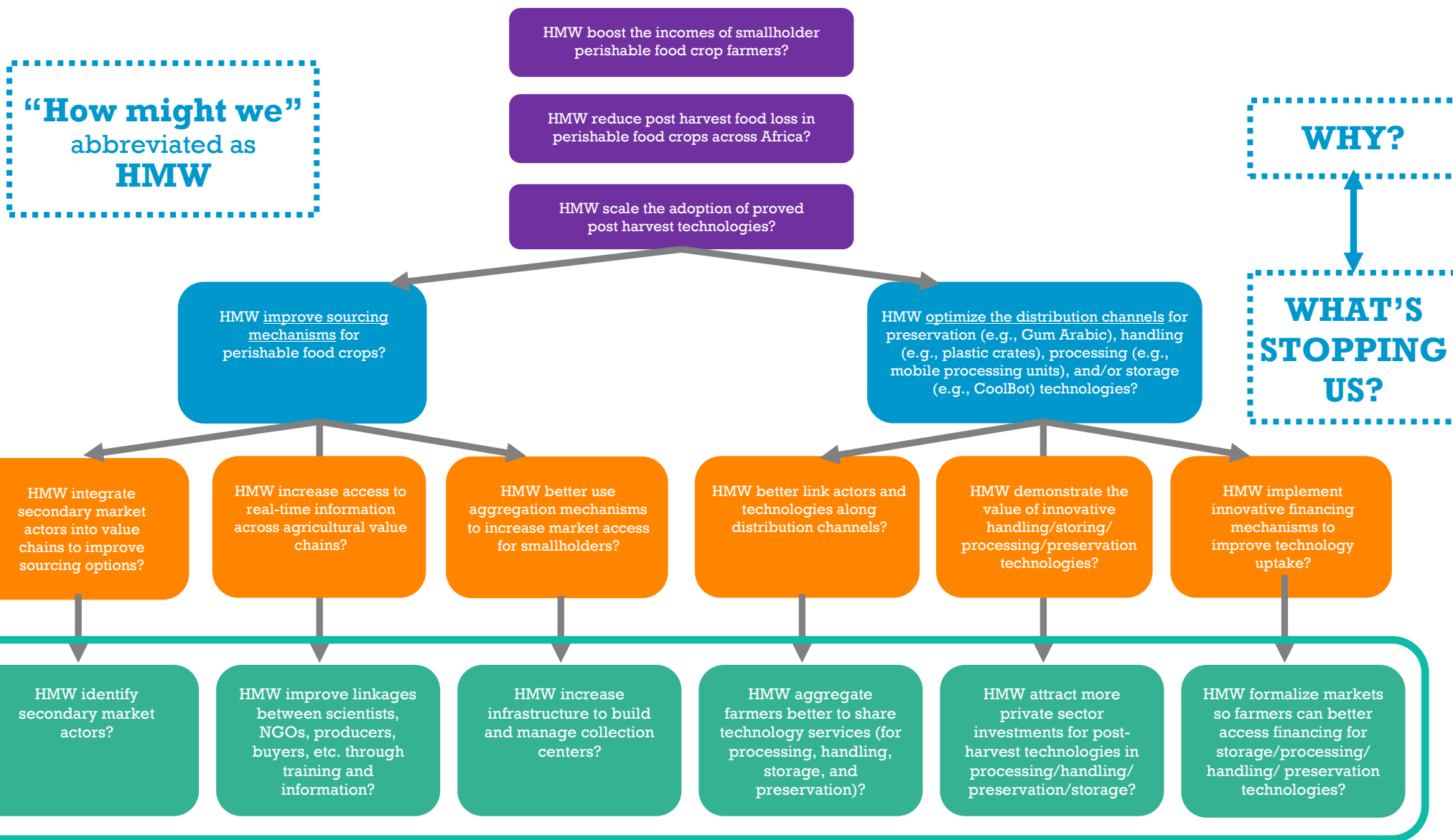
Collaboration Colloquium participants learned how to use a design tool called Challenge Mapping to identify high potential challenges that they would focus on over the coming day and a half. Challenge Mapping offers a way to deconstruct complex challenges by continuously exploring the bottlenecks to problem solving, and rationales for action. Voting allows groups to choose the highest potential challenges on which to focus.

Starting with prompt challenges that GKI identified through the previous three phases of work as a Social Innovation Lab, participants split into two groups, developing large, detailed challenge maps. Next, each participant voted on the top five challenges (s)he believed are both crucial to addressing post harvest loss *and* that require multi-sectoral action/ collaborative innovation to deliver solutions. Participants then split into teams around the six highest scoring challenges on which they focused for the rest of the Collaboration Colloquium. On the following page, find a visualization of the high-level challenges provided to participants as prompts, as well as the six challenges selected.

# III

## IDENTIFYING CHALLENGES FOR ACTION AND INNOVATION

Using the purple and blue challenge statements below as prompts, Collaboration Colloquium participants split into two groups, developing large, detailed challenge maps; one focused more squarely on improving sourcing mechanisms, the other on optimizing the distribution channels for preservation, handling, processing and/or storage (both shown in blue). Six sub-challenges, shown in orange, built from a year's worth of analysis and expert design sessions. They offered participants a jumping off point from which they formulated almost 90 new ideas in a rapid-fire interactive session. The six green challenges at the bottom of the map represent those challenges with the most votes. Teams spent the remainder of the Colloquium developing a suite of integrated innovations aimed at these six focal challenges.





# Innovation Diffusion Curves



Innovation Diffusion Curves provided Collaboration Colloquium participants with the chance to explore the innovations that they believed could effectively solve their starting, focal challenge. The six teams—each working on a single, specific focal challenge—ideated innovations that they believed could help solve this challenge. From the many creative ideas they considered, expert teams chose their four top innovations, which they believed would have the biggest impact if brought to scale. Teams then broke into pairs; each pair used an Innovation Diffusion Curve to identify the activities, actors, and resources needed to move this innovation from start up, to demonstration, to scale.

In this section, find recreations of the Innovation Diffusion Curves that the six teams created at the Collaboration Colloquium—four per team. The Diffusion Curve at the top of each page provides detail on how one proposed innovation might move from start up, to demonstration, to scale. Below that graphic, find photos of the three other Innovation Diffusion Curves the team produced, with brief summaries of the steps they proposed. Following the creation of the Innovation Diffusion Curves, teams at the Collaboration Colloquium moved the resources and actors they had placed on their Diffusion Curves into an Integrated Innovation Landscape, each of which is described further and reproduced in this report, starting on page 21.

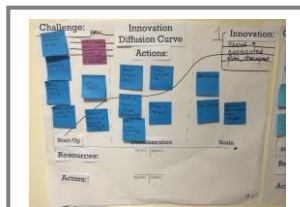
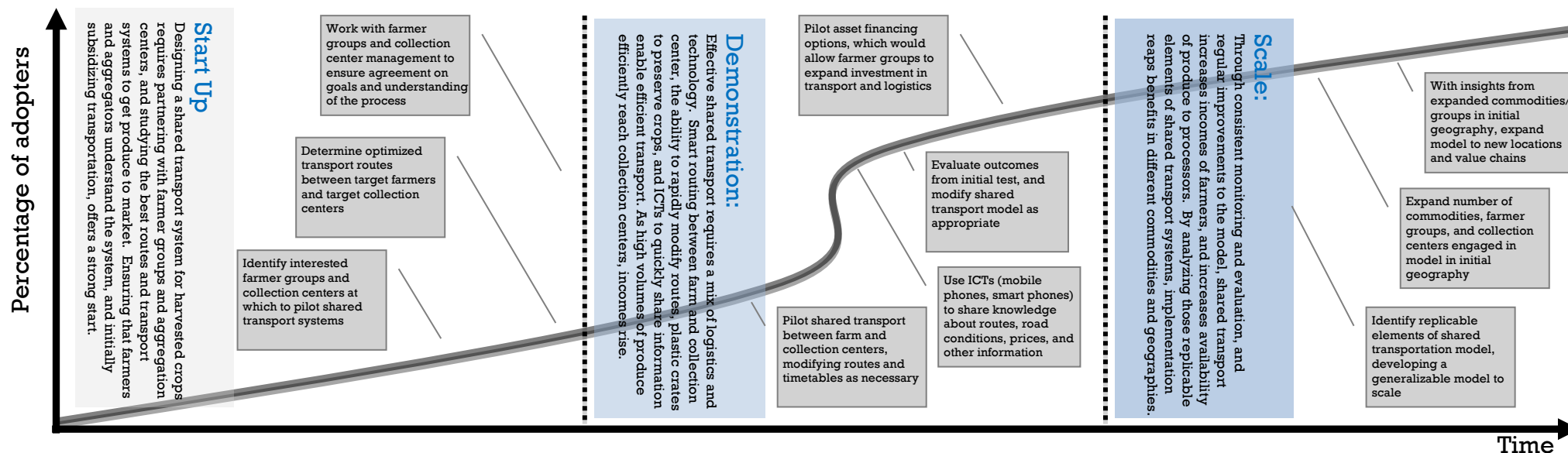


# IV

# INNOVATION DIFFUSION CURVES

Challenge 1: HMW formalize markets so farmers can better access financing for storage/processing/handling/preservation technologies?

**INNOVATION: SCALED AND SHARED TRANSPORT TO COLLECTION CENTERS FOR VIABLE AGGREGATION** (PICTURED BELOW)



## INNOVATION: SHARED AND AGGREGATED MANAGEMENT OF FARMS

- Start up: Identify specific crops that could be managed, and farmers to aggregate, through shared management scheme
- Start up: Train managers and others in system, begin to test shared management in small sample
- Demonstration: Expand footprint by linking to large, formal buyers and processors
- Demonstration: Evaluate model and results from testing, and modify as necessary
- Scale: Move into new commodities and geographies, while spinning off private farm management companies
- Scale: Potentially develop system to register shared management farms



## INNOVATION: POOLED SERVICES AND FACILITIES RUN BY THE PRIVATE SECTOR, ORGANIZED AT EACH PRODUCTION CLUSTER

- Start up: Identify services farmers need, and establish linkages between farmers and private sector actors to test pooled service delivery
- Start up: Determine which PHL technologies and services should be pilot tested, and plan out how technologies and services will be pooled
- Demonstration: Implement pooling of services in pilot location (e.g., sharing technology, capacity building, space, etc.) and modify methods based on results of testing
- Scale: Expand implementation of pooled service delivery to different commodities
- Scale: Study efficacy of activities, and continuously assess and update the business model and activities performed

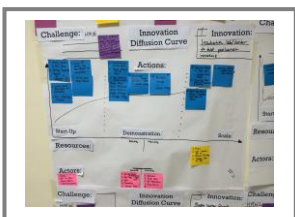
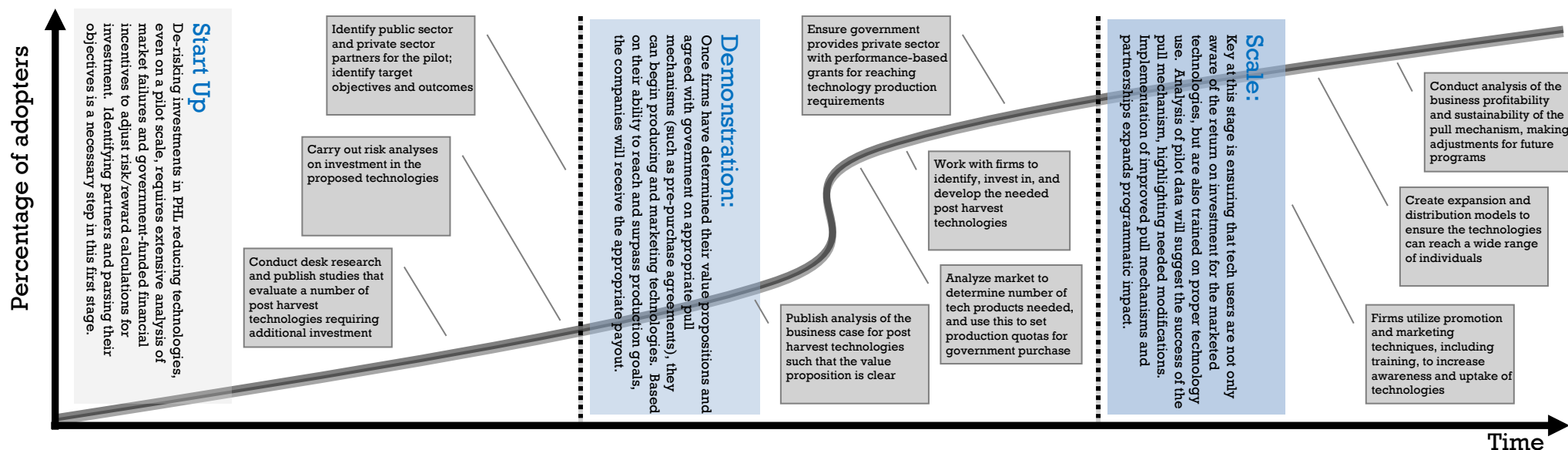


## INNOVATION: CONTRACT FARMING FOR INTERNAL MARKET PRODUCTION (I.E., NOT FOR EXPORT, BUT FOR THE DOMESTIC MARKET)

- Start up: Identify product standards needed in the local market and train farmer groups on how to meet standards
- Start up: Identify storage/processing technology suppliers, and develop contracts with local producers and buyers based on their needs and farmers' production projections
- Demonstration: Implement contract farming for internal market production, studying its effectiveness based on data gathered
- Scale: Based on experiences with pilot, and dynamics of different commodities, plan for implementation of model on different commodities
- Scale: Expand capacity building and advocacy efforts for local contract farming, while encouraging government policies conducive to this innovation

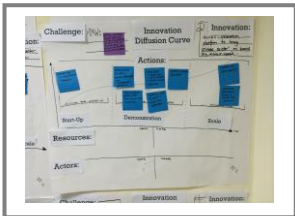
## Challenge 2: HMW attract more private sector investments in post-harvest technologies in processing/handling/preservation/storage?

### INNOVATION: DE-RISK PRIVATE SECTOR INVESTMENTS WITH PUBLIC-PRIVATE PARTNERSHIPS AND PULL MECHANISMS (PICTURED BELOW)



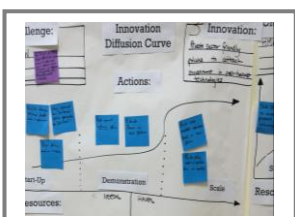
#### INNOVATION: INCUBATION LAB / CENTER TO TEST POST-HARVEST INNOVATIONS (TECHNOLOGIES)

- Start up: Determine the target market and the farmer groups that will be used to test the given technologies / innovations
- Start up: Identify the ideal location and the resources (technological, human, financial) needed to build / launch the center
- Demonstration: Sensitize market actors (individuals, groups, and companies involved) such that they have knowledge on and interest in the newly tested technologies
- Demonstration: Test technologies, reviewing results from tests, and making the necessary adjustments needed to enhance the technologies' effectiveness
- Scale: Publish impact studies and case studies such that the learning about the technology testing process can go beyond the incubation center
- Scale: Expand and diversify the model to cover new regions, new value chains, new farmer groups, and new technologies



#### INNOVATION: INNOVATION PLATFORM TO INCREASE PRIVATE SECTOR INTEREST IN POST HARVEST TECHNOLOGY INVESTMENTS

- Start up: Identify focal post harvest technologies that need private-sector investment and conduct a cost-benefit analysis to demonstrate economic viability
- Start up: Launch the online or in-person interface and invite key stakeholders to participate in discussion and sharing on needed and existing technologies
- Demonstration: Hold workshops for researchers, policymakers, private sector, and end users to spur interest in investment and collaboration on focal post harvest tech
- Demonstration: Identify and quantify the potential demand for the focal innovations / technologies in order to have a targeted supply that exactly meets the market demand
- Scale: Expand platforms to include new partners / innovations, and use an awareness campaign to get more private sector actors interested in post harvest investments
- Scale: Leverage additional funds to bring to scale the innovations / technologies at hand, including training on proper use and methods of the technologies

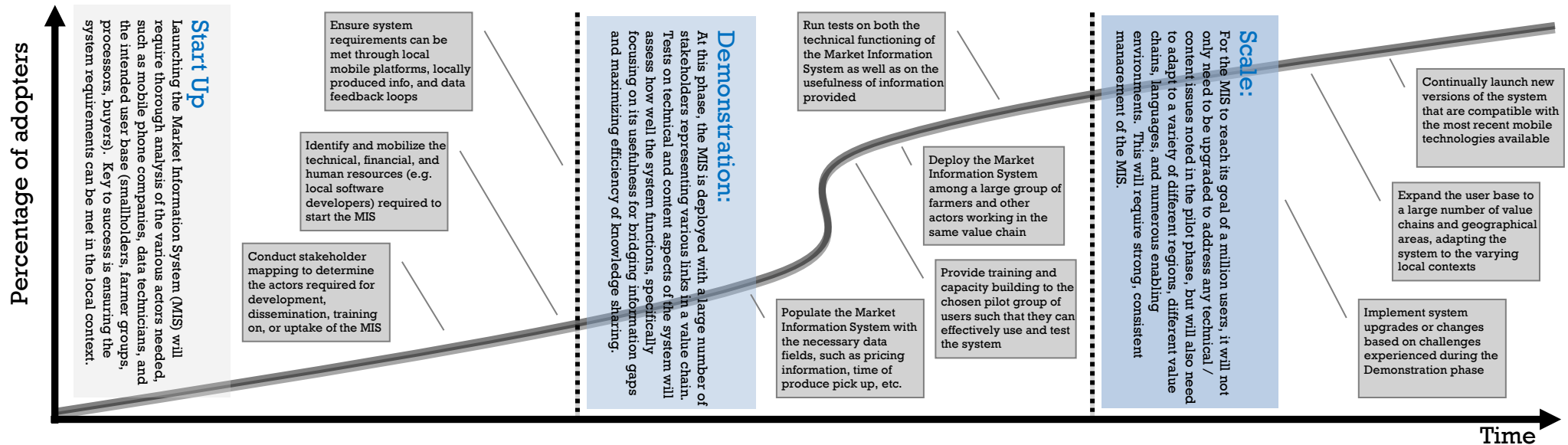


#### INNOVATION: PRIVATE SECTOR FRIENDLY POLICIES TO ATTRACT INVESTMENT IN POST HARVEST TECHNOLOGIES

- Start up: Facilitate initial discussions between the private sector and the government to discuss the "pro-business" aspects of "pro-farmer" policies
- Start up: Conduct research on specific private sector post harvest technology investment needs, and use that research as a basis for drafting new policies
- Demonstration: Work with government agencies to develop appropriate policies, and draft implementation plans so that the policies can take effect quickly and smoothly
- Demonstration: Launch education and awareness campaigns to educate farmers and farmer groups on the new policies
- Scale: Guide the private sector through the process of adjusting the firm's operations such that they are in line with the newly implemented policies
- Scale: Monitor the impacts of the newly implemented policies and make amendments or develop new policies as needed to reach private sector investment goals

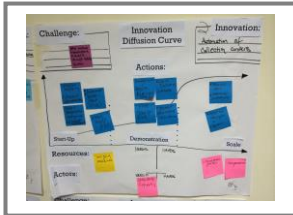
### Challenge 3: HMW increase infrastructure to build and manage collection centers?

#### INNOVATION: MARKET INFORMATION SYSTEMS (MIS) (PICTURED BELOW)



#### INNOVATION: PLATFORM FOR COLLABORATIVE INFRASTRUCTURE DEVELOPMENT

- Start up: Form a network of the actors (government, private, sector, farmer groups) with a stake in developing efficient post harvest infrastructure
- Start up: Identify the relevant policies that will guide the running and management of the platform (such as policies supporting public private partnerships)
- Demonstration: Educate value chain actors on platform participation and how to work collaboratively to develop a new infrastructure planning system
- Demonstration: Identify success metrics that will be used to test the effectiveness of the new infrastructure development system
- Scale: Disseminate communication tools, such as policy briefs and success stories, which can be used to replicate the infrastructure model in other areas
- Scale: Launch the platform model in new regions that also suffer from insufficient infrastructure needed for collection centers



#### INNOVATION: STANDARDIZATION OF COLLECTION CENTER OPERATIONS TO ALLOW FOR REPLICATION AT SCALE

- Start up: In target collection centers, assign roles and responsibilities for all actors involved in the day-to-day running and management
- Start up: Conduct process mapping to clearly demonstrate the activities that must occur at the collection center and how the various processes interact
- Demonstration: Document deliverables and milestones for the creation and management of collection centers, for ease of replication
- Demonstration: Raise awareness and gain buy-in for collection centers by demonstrating the business case for aggregation and improved management
- Scale: Mobilize resources (financial, human, technical, etc.) needed to launch networks of collection centers across various regions and value chains
- Scale: Publish guidebooks for updating the operation and management of newly launched networks of collection centers



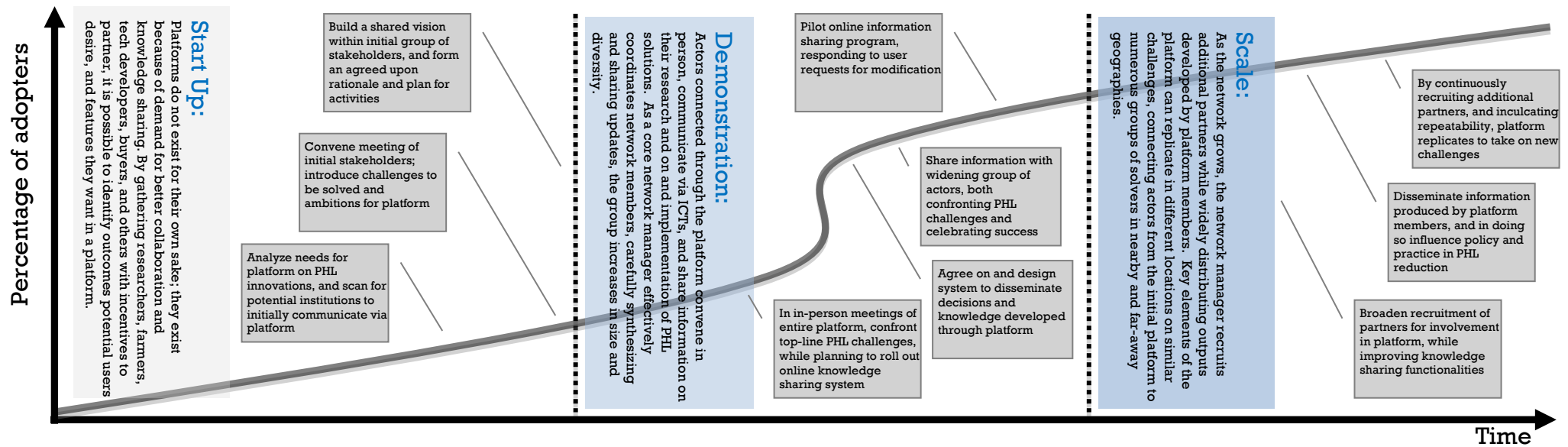
#### INNOVATION: UP-TO-DATE TRAINING MODULES AND COMPREHENSIVE TRAINING SYSTEM FOR ALL ACTORS AFFILIATED W/ CENTERS

- Start up: Identify stakeholders (e.g. farmers, buyers, tech suppliers) involved in the management of collection centers and clarify their roles and responsibilities
- Start up: Work with those stakeholders to collaboratively design training modules and systems that touch on aspects of PHL reduction
- Demonstration: Review and enhance trainings such that they meet the needs and answer the questions of all actors that use collection centers
- Demonstration: Develop a training of trainers system such that the trainers can continue to launch new capacity building efforts over time, as needed
- Scale: Design an affordable pricing system for the trainings that will allow for sustainable dissemination
- Scale: As new technologies, new methods of communication, and new delivery processes develop, adjust training modules to meet new needs



## Challenge 4: HMW improve linkages between scientists, NGOs, producers, buyers, etc. through training and information?

### INNOVATION: PLATFORMS FOR CO-CREATION BETWEEN RESEARCH, PRIVATE SECTOR, PUBLIC SECTOR, NGOs, PRODUCERS (PICTURED BELOW)



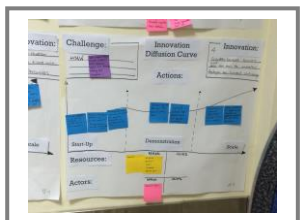
#### INNOVATION: PILOT STUDIES TO TEST THE PRACTICAL EFFECTIVENESS OF LAB-BASED PHL SOLUTIONS

- Start up: Develop innovative technologies or processes (e.g., Gum Arabic for fruit preservation in Africa, cooling technologies, etc.) in research institutions
- Start up: Identify which of these technologies might be viable in the market (in terms of willingness to pay) if demonstrated to be technically effective/feasible
- Demonstration: Publish and disseminate findings, reaching out to potential users of data on post harvest technologies; identify funding to pilot technologies in the field
- Demonstration: Test laboratory/research institutions' findings at pilot scale, and modify technologies based on effectiveness
- Scale: Widely communicate information on effectiveness of technologies to potential private sector buyers/investors, as well as other users (farmers, etc.)
- Scale: Communicate with potential investors, collaborating with those who have the capacity to scale use of the technology



#### INNOVATION: SHOWCASE/MARKET INNOVATIONS IN PHL DEVELOPED THROUGH INDUSTRY/UNIVERSITY SCIENTIFIC COLLABORATION

- Start up: Identify target consumers/users of innovations (such as farmers, processors, buyers, etc.)
- Start up: Develop and implement promotional campaign and events to target these potential users
- Demonstration: Based on interest, develop sales and distribution model for innovative product(s)
- Demonstration: Identify local ambassadors with an incentive to promote the innovation(s)
- Scale: Implement large scale marketing campaign targeting new potential users in different markets
- Scale: Modify outreach activities based on data from monitoring and evaluation, expanding reach of PHL innovations

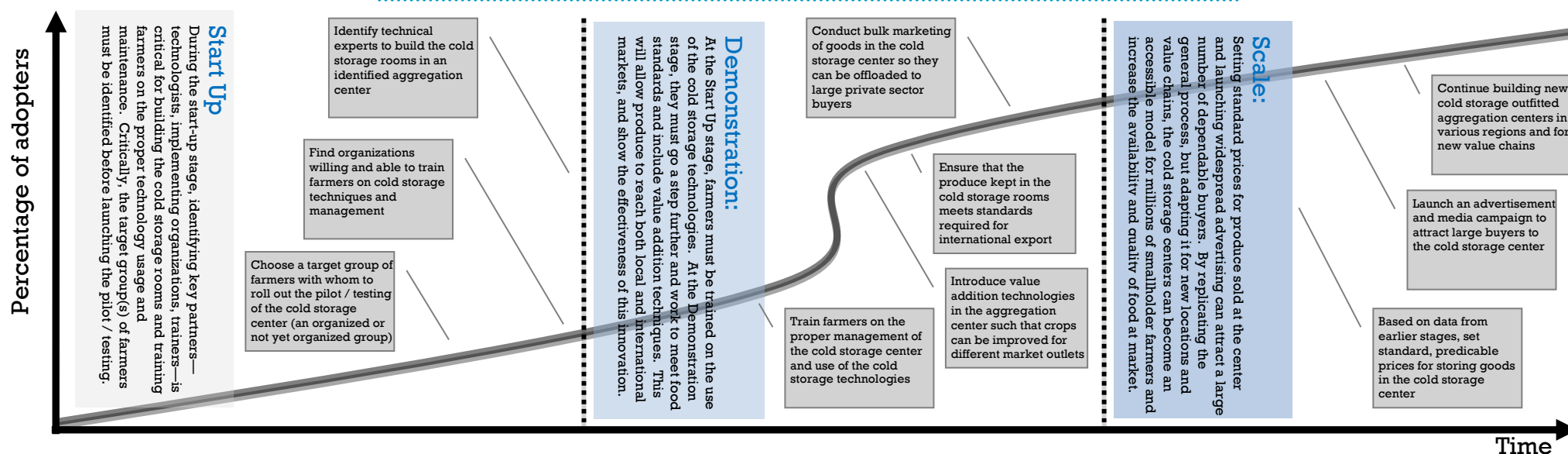


#### INNOVATION: SCIENTISTS DEVELOP BUSINESS CASES/PLANS FOR THEIR PHL INNOVATIONS PACKAGED FOR DIFFERENT STAKEHOLDERS

- Start up: Identify scientists developing (or with capacity to develop) relevant technologies/processes and sensitize them to the potential for marketing/commercialization
- Start up: Train interested scientists in creating effective business plans
- Demonstration: Focus on high potential business plans developed through training, and seek out investment for these solutions
- Demonstration: Implement solution at small scale with initial investment, continuously monitoring efficacy
- Scale: Identify enhancements to solution, modifying business plans and technologies as necessary based on monitoring and evaluation data and customer/user feedback
- Scale: Widely disseminate information on successes, and work with additional investors to scale product(s)

## Challenge 5: HMW aggregate farmers better to share technology services (for processing/handling/storage/preservation)?

### INNOVATION: COLD STORAGE CENTERS FOR PERISHABLE GOODS (PICTURED BELOW)



### INNOVATION: HERMETIC STORAGE (E.G., PICS BAGS)

- Start up: Identify storage technologies that need testing and groups with which to test those technologies' effectiveness on reducing infestation and grain loss
- Start up: Identify possible users of the technology so that demonstrations and awareness campaigns can be tailored and targeted to those populations
- Demonstration: Unveil the demonstrations by inviting all stakeholders and media, such that it serves as an awareness campaign on the return on investment of the tech
- Demonstration: Collect data on technology preferences and the technology's reception at media / farmer demonstrations
- Scale: Partner with large buyers to sign supply contracts with the technology buyers / implementers (such as NGOs and firms)
- Scale: Work with government / donors / technology suppliers to guarantee credit to farmers, so they can afford to invest in hermetic storage solutions



### INNOVATION: TRAINING USING VISUAL AIDS AND VIDEOS

- Start up: Conduct a situation analysis to identify gaps in knowledge / training needs on post harvest technology; develop training content based on these needs
- Start up: Identify and prepare trainers to teach the material in a way that is tailored to each local context and that uses visual aids to enhance learning
- Demonstration: Identify target groups of trainees (farmer groups, NGOs, etc.) and conduct trainings
- Demonstration: Collect feedback from the trainees to assess impacts of the training and make any necessary changes
- Scale: Continue to update training tools as new ICTs and visual aid technologies become available
- Scale: Apply skills and knowledge learned such that the technologies and methods required to reduce post harvest loss are widely adopted

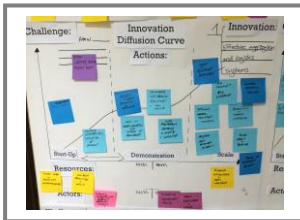
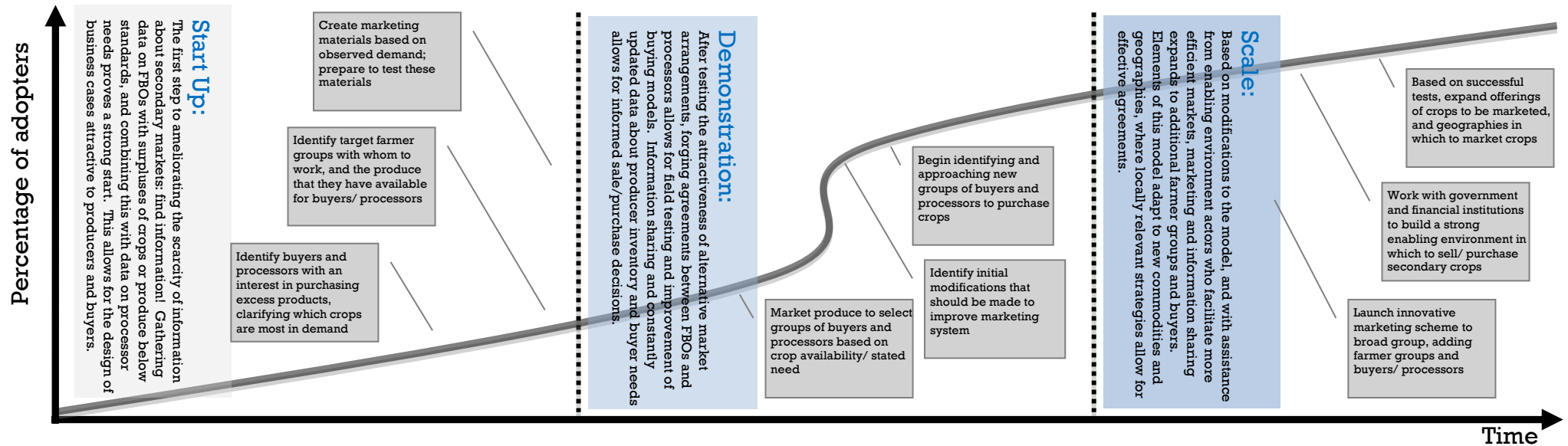


### INNOVATION: MOBILE PROCESSING UNITS (E.G., MOBILE MILLING MACHINES)

- Start up: Select collection centers that will house the mobile processing units
- Start up: Identify farmers to participate in the pilot test, aimed at demonstrating the value of mobile processing units for value addition / reducing PHL
- Demonstration: Secure private management of processing operations to ensure proper methods are followed and standards are met
- Demonstration: Identify financing mechanisms for farmer based organizations such that they can jointly invest in mobile processing units
- Scale: Work with farmer based organizations to develop a management system for shared use of the mobile processing units
- Scale: Partner with manufacturing companies to ensure that the supply of mobile processing units meets the increasing demand for close-to-farm processing

## Challenge 6: HMW identify secondary market actors?

**INNOVATION: VASTLY MORE NOVEL MARKETING ABOUT SECONDARY MARKET OPPORTUNITIES (PICTURED BELOW)**



### INNOVATION: EFFECTIVE AGGREGATION AND LOGISTICS SYSTEMS

- Start up: Identify quantities of agricultural products needed by different buyers/processors
- Start up: Recruit farmers working in these value chains with an interest/incentive to aggregate produce
- Demonstration: Aggregate farmer groups, while piloting state of the art logistics management systems
- Demonstrate: Test and refine logistics and communication systems, and train farmer groups on how to effectively manage transport and logistics
- Scale: Develop efficient transport systems, reliable/fast payment systems, and stronger marketing systems for produce
- Scale: Interface with a growing number of farmer groups, processors, and buyers interested in aggregating produce



### INNOVATION: LOW-TECH AND EFFICIENT PROCESSING TOOLS (E.G., MOBILE PROCESSING FOR CASSAVA)

- Start up: Identify organized farmer groups that are interested in processing/value addition
- Start up: Search for affordable/novel financing options for processing technologies
- Demonstration: Link farmer groups to research institutions, and—once appropriate technologies are identified—build capacity on using technologies
- Demonstration: Demonstrate effectiveness of technologies in the field with initial farmer organizations
- Scale: Connect larger groups of farmers to institutions that can provide financing for technologies, carefully tracking effectiveness of model
- Scale: Develop improved distribution channels for technologies, market those technologies, and extend model to new markets/farmer groups



### INNOVATION: AFFORDABLE FINANCING MODELS (FOR SECONDARY MARKET INVESTMENTS)

- Start up: Develop case studies and profiles on working, and yet untested, secondary market models
- Start up: Based on this data, develop attractive financing models for different actors (e.g., investors, farmers, buyers)
- Demonstration: Link secondary market actors to financing providers on a pilot basis
- Demonstration: Train secondary market actors on partnership, and provide mechanisms for information sharing (e.g., mobile applications)
- Scale: Create awareness of effective financing models, as well as complimentary services, such as training
- Scale: Work with government/others to develop strong enabling environments for secondary market financing



# Integrated Innovation Landscapes



After developing their four Innovation Diffusion Curves, teams vetted their ideas by sharing them with one another. This afforded teams an opportunity to suggest and offer resources, partners, and critiques that could be used to improve proposed, innovative solutions. Teams built Integrated Innovation Landscapes to pull together the resources and actors they had included in their four Innovation Diffusion Curves, enhanced with suggestions and offers made by other teams. These Landscapes provided teams with an opportunity to combine what had been discrete Innovation Diffusion Curves into one integrated system of innovations, and explore what resources they had and needed on the level of this integrated picture.

The following section offers a visualization of teams' unique Integrated Innovation Landscapes as oriented toward their focal challenge. In each corner of the Landscape, find those resources and actors needed or available on the level of each of the team's four innovations. In the center square, find those multi-use resources and actors needed across multiple innovations. Securing these resources and partners as a first priority maximizes efficiency and sharing across multiple innovations attuned to the Colloquia participants' top post harvest loss challenges.





# INTEGRATED INNOVATION LANDSCAPES



Challenge 1: HMW formalize markets so farmers can better access financing for storage/processing/handling/preservation technologies?

## INTEGRATED INNOVATION LANDSCAPE

### INNOVATION

#### Shared and aggregated farm management

By aggregating their produce through a shared farm management system, smallholders can jointly invest in the post harvest technologies they need to preserve their crops until they are sold in bulk to a buyer.

##### Resources

- Marketing plan
- Extension agents to train lead farmers for management scheme
- Land

##### Actors

- Agronomists

### INNOVATION

#### Scaled and shared transport to collection centers for viable aggregation

Sharing transport from farm to collection center allows farmers to aggregate their produce for bulk sale in an efficient manner that uses less petrol, takes less time, and costs less.

##### Resources

- Collection centers
- Marketing plan that highlights the benefits of shared transport
- Monitoring and evaluation methods (M&E)
- Success stories + case studies

##### Actors

- Coordinator (human resources) staff time
- Donor lending program (subsidize at first)

### ACROSS THE FOUR INNOVATIONS

#### Shared Resources and Actors Needed and Available

##### Resources

- Policy and regulation
- Formal registration mechanism and legal framework
- Funds for training

##### Actors

- Buyer interested in internal market production with local distribution and willing to take risk investing in smallholders
- Government partners
- Farmers/farmer groups

### INNOVATION

#### Pooled services and facilities run by the private sector, organized at each production cluster

Rather than trying to distribute technologies and services at the individual farm level, firms can pool these services to be used by farmer groups for ease of access and decreased risk of investment.

##### Resources

- Information and communication technology (ICT) support
- Some PHL technology already available
- Production clusters

##### Actors

- Farmer training institutions
- Agribusiness firms
- Trainers/consultants
- NGOs (local + international)

### INNOVATION

#### Contract farming for internal market production

After being trained on the food standards required by buyers, farmers can develop contracts with buyers serving the local—as opposed to export—market. Contract farming provides farmers with a consistent and reliable income, which decreases the risk of investing in post harvest technologies.

##### Resources

- Farming technology inputs
- Farmer loyalty schemes
- Certification standards (Good Agricultural Practice)
- Contracts between farmers and buyers
- Appropriate value chains

##### Actors

- Trainers/consultants
- Private sector - buyers, processors, financiers, farmers

## INSIGHTS FROM THE INTEGRATED INNOVATION LANDSCAPE

This Integrated Innovation Landscape highlights the need for formalized markets and better management across value chains. Aggregated farm management, pooled services and transportation, and contracts with buyers allow farmers to better access the financial resources they need to invest in post harvest storage, processing, handling, and/or preservation technologies. Across the innovations listed above, there is a common need for government involvement to develop enabling policies and registration mechanisms to help formalize markets, certify food standards, and decrease the risk of financing farmer investments. With their success dependent on a multi-sectoral approach, these innovations rely on government support not only to increase farmers' access to credit, but also to encourage buyers to source from smallholder farmers. The ability of farmers to jointly transport produce to well-managed collection centers, where buyers can purchase aggregated produce will enable contracts between farmers and buyers, and fuel a more formalized market system.

## Challenge 2: HMW attract more private sector investments for post harvest technologies in processing/handling/preservation/storage?

### INTEGRATED INNOVATION LANDSCAPE



### INSIGHTS FROM THE INTEGRATED INNOVATION LANDSCAPE

In many cases, entrepreneurs and firms do not face incentives to invest in manufacturing and distributing PHL-reducing technologies; the risks seem to be too high. Because smallholder farmers have limited access to finance and generally cannot afford to buy PHL technologies outright, there is little incentive for companies to invest in producing technologies that intended users cannot afford. However, the innovations in this Integrated Innovation Landscape highlight the ability to increase dialogue regarding the return on investment for post harvest technologies, and use government policies and financial incentives to increase investments in transformative technologies. These innovations require a strong government role in providing financial support and/or incentives for reducing PHL. Furthermore, they require scientific expertise and research on which post harvest technologies are best suited to smallholders' needs. Beyond making technologies available, the success of these innovations relies on the ability to train farmers and farmer groups on the appropriate application of the technologies, and to effectively market these technologies to these users.



## Challenge 3: HMW increase infrastructure to build and manage collection centers?

### INTEGRATED INNOVATION LANDSCAPE

#### INNOVATION

#### Platform for collaborative infrastructure development

Well-organized communication between actors involved in developing infrastructure for PHL reduction allows for dissemination of knowledge and advocacy for policies and programs aimed at improving PHL infrastructure. Through policy briefs and success stories, this platform will influence policies and action on PHL across Sub-Saharan Africa.

##### Actors

- Researchers
- Transporters
- Government (actors involved in infrastructure)
- Buyers interested in improving infrastructure

#### INNOVATION

#### Standardization of collection centers to allow for replication at scale

Standardizing collection center operations and management by mapping processes, roles/responsibilities, and best practices allows for a more streamlined system that is efficiently and effectively replicated.

##### Actors

- Technical experts to launch computerized system that tracks various collection center processes
- Entrepreneurs to launch new collection centers

#### INNOVATION

#### Market Information Systems (MIS)

Using mobile and computer technology, a market information system provides real-time information to smallholders, buyers, and other value chain actors.

##### Resources

- Software and online servers
- Mobile phones
- Internet

##### Actors

- Technical experts (e.g. Esoko)
- Traders and/or agro-dealers
- Mobile technology companies

#### ACROSS THE FOUR INNOVATIONS

#### Shared Resources and Actors Needed and Available

##### Resources

- Training facilities
- Utilities (power, water, etc.)
- Communication resources (e.g., mobile phone platforms)

##### Actors

- Human resources for running / managing collection centers
- Farmers and farmer groups
- Government
- Industry bodies (e.g., technology suppliers)
- Buyers

#### INNOVATION

#### Up-to-date training modules and comprehensive training system for all actors affiliated with collection centers

Based on a needs assessment of all actors involved with collection centers, various stakeholders collaboratively design training modules and develop a training of trainers system.

##### Resources

- Transport
- Office space
- Knowledge of crop management and best practices
- Training materials

##### Actors

- Universities and research institutes
- Personnel to run trainings at collection centers

#### INSIGHTS FROM THE INTEGRATED INNOVATION LANDSCAPE

Building and managing collection centers is critical to ensuring smallholder farmers can aggregate their produce for sale to large buyers; however, farmers often live in remote areas without the infrastructure needed to build and manage collection centers. The innovations highlighted above, which aim to increase and improve infrastructure, rely heavily on information sharing—through platforms, Market Information Systems, trainings, and process mapping. Therefore, many of the resources required to implement these innovations involve software, mobile technology, and other computerized systems. Moreover, these innovations necessitate trainings on collection center management, collaborative infrastructure development, and proper post harvest technology use. By increasing coordination, communication, and real-time information sharing on the day-to-day collection center needs and activities, these innovations have the ability to improve collection center management such that the centers are more easily accessible to smallholder farmers.

## Challenge 4: HMW improve linkages between scientists, NGOs, producers, buyers, etc. through training and information?

### INTEGRATED INNOVATION LANDSCAPE

#### INNOVATION

#### Pilot studies to test the practical effectiveness of lab-based PHL solutions

Lab tests allow researchers to develop innovative, financeable ideas for post harvest technologies and/or processes (e.g., Gum Arabic edible coating) in research institutions, while publications allow researchers to disseminate findings on the effectiveness of those solutions.

##### Resources

- Market publicity
- Technical knowledge on infrastructure

##### Actors

- Lead researchers
- Research assistant, PhD students, post doctoral fellows, laboratory assistants
- Farmers, growers, consumers

#### INNOVATION

#### Showcase/market innovations in PHL that have been developed through Industry/University science collaboration

Sales and distribution models that use local ambassadors to promote post harvest innovations will increase awareness of the technologies and demonstrate the return on investment.

##### Resources

- Advertising campaign
- Distribution models
- Case studies on industry – scientific collaboration
- Product beneficiaries to promote their experiences

##### Actors

- Sales and distribution staff
- Marketing and communications staff

#### ACROSS THE FOUR INNOVATIONS

#### Shared Resources and Actors Needed and Available

##### Resources

- Infrastructure
- Financial support

##### Actors

- Financial supporters
- Scientists
- Industry partners (e.g., technology manufacturers)
- Farmers
- Human resources for capacity building
- Financial resources specialists
- Public sector supporters
- Agricultural NGOs

#### INNOVATION

#### Platforms for co-creation between Research, Private Sector, Public sector, NGOs, Producers

Multi-sectoral platforms serve to increase understanding of shared goals / objectives as they relate to decreasing post-harvest loss.

##### Resources

- Content developed to attract partners
- Research outputs on post harvest loss
- Interest in post-harvest loss by institutions

##### Actors

- Public sector
- Private sector
- Network convener
- Pre-existing networks and partners

#### INNOVATION

#### Business cases/plans for PHL innovations packaged for different stakeholders

To seek out investment in post harvest technologies, scientists and researchers receive training on how to develop business plans that demonstrate the return on investment for their newly-developed technologies.

##### Resources

- Workshops on PHL innovation and business plan writing

##### Actors

- Business development managers

### INSIGHTS FROM THE INTEGRATED INNOVATION LANDSCAPE

Improving linkages between NGOs, farmers, researchers, firms, and government actors is key to addressing the multi-faceted challenge of PHL. The innovations highlighted above represent four necessary inroads to improving those linkages. Deepening linkages requires a demonstration of both the scientific and business cases for various post harvest solutions—in short, providing a rationale for various actors to invest their time, expertise, and other resources in solving the PHL challenge. Beyond research and lab testing on the effectiveness of PHL technologies, these innovations require financial planning for connecting technologies to smallholder farmers, who often do not have access to the credit or cash needed to invest in the innovations themselves. To continue developing solutions to aspects of the PHL challenge, platforms (both online and in-person) and the resources to support those platforms are needed to facilitate communication across a wide, and growing, range of individuals and institutions.



## Challenge 5: HMW aggregate farmers better to share technology services (for processing/handling/ storage/preservation)?

### INTEGRATED INNOVATION LANDSCAPE

#### INNOVATION

#### Cold storage centers for perishable goods

Innovative technologies for cooling allow perishables to be stored at low temperatures for a relatively low cost, such that they are easily adopted among farmer groups aggregating produce.

##### Resources

- Packaging materials
- Produce from farmers
- Constructed cold storage system
- Means of transporting produce from farm to cold store

##### Actors

- Technical experts
- Buyers
- Staff to work in the cold store
- Insurance companies

#### INNOVATION

#### Hermetic Storage (e.g., PICS bags)

Triple layer hermetic bags limit oxygen, thereby preventing weevils and other pests from destroying staple food crops. Storing grains, beans, and pulses in these bags allows smallholders to store crops and sell at times when higher profit margins are likely.

##### Resources

- Finances for increased demonstrations in other areas
- Funding for research/data collection on the use of technology

##### Actors

- AGRA
- Purdue University
- Technical staff
- GrainPro
- Donor organizations

#### ACROSS THE FOUR INNOVATIONS

#### Shared Resources and Actors Needed and Available

##### Resources

- Financing for pilot
- Finance for scaling up technologies

##### Actors

- Government
- Farmers/ Farmer groups
- Private manufacturing companies
- Financial institution to finance the technologies
- NGOs

#### INNOVATION

#### Training using visual aids, pictograms, and cinema

Visual trainings can quickly bring a large number of smallholders up to speed on the use of various technologies - these media allow trainings to be easily adapted and tailored to different value chains, contexts, etc.

##### Resources

- Training tools
- Permits
- Farm land
- Office space
- Training facilities

##### Actors

- Researchers
- Business developers
- Project staff
- Trainers

#### INNOVATION

#### Mobile processing units (e.g., Mobile Milling Machines)

On-farm or close-to-farm processing machines allow smallholders to preserve their value-added crops for longer periods of time and sell them to buyers at a higher price due to that value addition.

##### Resources

- Skilled labor
- Infrastructure
- Affordable credit
- Small portable machines

##### Actors

- African Agricultural Technology Foundation (AATF)
- Cassava: Adding Value for Africa (C:AVA)
- Dutch Agricultural Development and Trading Company

### INSIGHTS FROM THE INTEGRATED INNOVATION LANDSCAPE

The innovations described in this Integrated Innovation Landscape focus on equipping smallholder farmers to access and properly implement post harvest loss-reducing technologies, such as cold storage, hermetic storage, and mobile processing units. To achieve wide adoption of these technologies and train farmers on their proper use, technical experts are critical. NGOs, extension workers, researchers, and other actors can provide training that is adapted to the specific context. For any of these innovations, technology manufacturing companies are needed for ensuring technology design, availability, and distribution to remote agricultural areas. Above all, these innovations require financing, especially in the pilot phase. Once the return on investment for these innovations has been demonstrated, sustainable private-sector investment will be more likely to fill in gaps.

## Challenge 6: HMW identify secondary markets?

### INTEGRATED INNOVATION LANDSCAPE

#### INNOVATION

#### Effective aggregation and logistics systems

Efficient transport systems, reliable/fast payment systems, and strong marketing systems can attract more buyers to aggregated smallholder produce, facilitate better communication between firms and farmer groups, and form reliable business relationships.

#### Resources

- Market analysis and production analysis at firm level
- Proven, locally available technologies
- Agricultural input dealers
- Productive natural resource base

#### Actors

- New buyers
- Local and foreign investors
- Local manufacturers and suppliers

#### INNOVATION

#### Low tech and efficient processing tools (e.g., mobile processing for cassava)

Low-tech processing technologies allow remote smallholder farmers to process their crops on farm or close to farm, which increases shelf life and reduces PHL.

#### Resources

- Suitable financial products

#### Actors

- Technology users
- Government agencies
- Processors

#### ACROSS THE FOUR INNOVATIONS

#### Shared Resources and Actors Needed and Available

#### Resources

- Technical knowledge/analysis

#### Actors

- Mobile network providers
- Safaricom
- Vodafone
- Equitel
- Airtel
- Banks
- Micro-finance institutions
- Higher learning institutions
- Qualified personnel

#### INNOVATION

#### Vastly more novel marketing messaging about secondary market opportunities

Marketing of crops is essential to secondary markets functioning: buyers need to know of available produce. Online/ digital platforms and networks can increase access to real-time information on the availability of secondary market outlets/crops.

#### Resources

- Digital platform
- Network infrastructure
- Computer servers
- Office space

#### Actors

- Product developers

#### INNOVATION

#### Affordable financing models (for secondary market investments)

Case studies and profiles on successful alternative/secondary market systems, as well as attractive financing models, will spur interest from a variety of actors (e.g., investors, farmers, buyers).

#### Resources

- Neutral market surveys/analyses

#### Actors

- Philanthropic organizations
- Private businesses and institutional markets
- NGOs
- Umati Capital
- Uwezo fund + Equity Bank + Juhudi Kilimo

### INSIGHTS FROM THE INTEGRATED INNOVATION LANDSCAPE

For smallholder farmers, selling produce to large markets (often export markets) is risky because farmers cannot always depend on their buyers to consistently purchase crops. Moreover, the ever-increasing stringency of export standards means that smallholder produce often does not meet requirements for sale. In these situations, having an alternative, or secondary, market outlet to purchase those crops is key. The innovations described above can help connect smallholders to those opportunities. Doing so would require a vast increase in real-time information sharing, fueled through digital platforms and mobile network providers. Additionally, improved, efficient transportation and logistics systems will allow smallholders to improve market access by getting crops to buyers quickly. Improved technology, transportation, and communication systems are all costly; therefore, successfully implementing these innovations would require financing from the government or financial institutions willing to invest in smallholder farmers and farming/PHL technologies.



## What is Storyboarding?

Storyboarding is a simple, yet powerful storytelling technique that visually represents how a user interacts with a system to achieve a goal. It does this by integrating disparate elements of a story—characters, challenges, environment—through a narrative sequence of drawings or pictures. Originally popularized in film production, storyboarding has become an important process for innovators, entrepreneurs, designers, and other professionals in media, technology, marketing, and the service sector. Easy to use and adaptable, storyboards can serve a number of purposes. They can act as a modeling tool to analyze existing scenarios and user experiences; a communication tool to explain how a technology or innovation influences a user's behavior; or as a creative tool to brainstorm, devise, and visualize solutions. Storyboarding, in essence, uses key elements of storytelling to organize ideas, communicate, and ideate.



## How did we use Storyboarding in the Colloquium?

### *Facilitated Storyboarding in 6 Steps:*

1. **Six-Panel Template for Storyboarding:** Using a template provided by GKI, participants developed storyboards with six panels. These panels highlighted the key elements of their storyboards: The Challenge, The Innovations, The Resources, Partner/Actions, Intermediate Achievement, and The Ideal Future.
2. **Hands-On Instruction:** GKI facilitators moved from group to group, offering guidance and support to ensure that the stories flowed and highlighted the innovative aspects of the narrative.
3. **Storytelling Coaching Session:** Each group sent their chosen Narrator to a coaching session, led by GKI's Sara Farley. Storytellers received guidance on voice, flow, and other narrative devices.
4. **Guided Prompts:** To ensure ideas were clearly conveyed, prompts, such as: "Beyond what's visualized in the illustrations, what other information can you imagine sharing about this idea to offer a sense of impact?" and "How would a listener to this story gauge the degree to which the innovations you've conceptualized are desirable / feasible / viable?" guided teams. These prompts pushed teams to make assumptions explicit and ensure their narrative conveyed critical messages for a listening audience.
5. **Time with the Artist:** After illustrating each group's six storyboard panels, US-based illustrator Chamisa Kellogg, worked with each team to make any necessary adjustments or additions to the drawings such that they accurately supported the verbal narration. See an example of Chamisa's work at left.
6. **Filmed Story Delivery with Evaluations:** The appointed Narrator from each group presented the team's story with the teams large-format illustrations, drawn by Chamisa. Following the presentation, an expert panel and audience members posed challenging questions regarding the story's ability to achieve impact. Finally, audience members completed an evaluation form, ranking each story on a number of factors such as feasibility, desirability, viability, and innovativeness, as highlighted in *The Waste and Spoilage Innovators' Storybook*.





# Conclusion

Over the course of the 14 months that the Global Knowledge Initiative served as a Social Innovation Lab for The Rockefeller Foundation's Food Waste and Spoilage initiative, we started with 18 learning questions on food loss, and took concerted steps to identify the challenges and opportunities in post harvest loss, as well as the innovations and actors well placed to drastically reduce it while providing benefits in terms of health, environment, and incomes in Sub-Saharan Africa. These steps included 6 global facilitated problem framing sessions, identification of 590 discrete PHL challenges, development of 26 case studies on efforts that could contribute to catalytic investment in PHL, and production of 6 innovative strategies within different intervention areas (e.g., improving access to market information, shortening supply chains, developing finance mechanisms, etc.).

The Food Waste and Spoilage Collaboration Colloquium represents the conclusion of GKI's Social Innovation Lab process, and produced innovative ideas, data on resource availability, and many other outputs. This event, attended by over 50 of the most out of the box minds in African agriculture, produced nearly 90 challenges, 24 Innovation Diffusion Curves on specific innovations, and 6 Integrated Innovation Landscapes and accompanying Stories of Future Impact. Testifying to their commitment to building a network of action, participants offered over 250 resources to fuel these innovations. Taken within the Social Innovation Lab process, this event produced significant information and insight that can guide future investments in PHL solutions, which in turn have the capacity to improve the lives of millions of African farmers, entrepreneurs, and consumers.



# ANNEX I: ABOUT THE GLOBAL KNOWLEDGE INITIATIVE

The premier challenges of today—reducing waste and spoilage in food chains, minimizing water insecurity in arid landscapes, protecting vulnerable ecosystems amid climate change—are complex and multi-sectoral. Solving these and other problems demands that the global community create bold new ways of organizing people and resources that cut across traditional sectoral, disciplinary, and geographic divides. Collaborative innovation networks offer a way to align resources and partnerships toward shared goals. Building and supporting such networks represents a cornerstone of the [Global Knowledge Initiative's](#) (GKI) work. Guided by our partners' challenges, we help researchers, entrepreneurs, policymakers, and others **locate** resources critical for problem solving; **enable** effective collaboration by building skills and designing shared agendas; and **connect** resources and partners to form durable networks; all to solve development challenges pertinent to science, technology, and innovation.

In November 2013, The Rockefeller Foundation named GKI as one of its premier [Social Innovation Labs](#). In this role, GKI designed and delivered a systems-based approach to address post-harvest food loss in Sub-Saharan Africa, comprised of four iterative phases:

- **Problem Framing:** GKI engaged more than 120 food value chain actors across six countries to [collectively map the many opportunities](#) for and barriers to reducing post-harvest loss in Sub-Saharan Africa.
- **Resource Assessment:** From the highest priority opportunities identified by experts, GKI developed [case studies of ongoing interventions](#) to explore what resources are available and needed to achieve impact at scale.
- **Solutions Visioning:** GKI [convened a workshop](#) where diverse experts prototyped creative strategies to reduce post-harvest loss, informed by the prioritized opportunities, resources, and stakeholders identified in previous design phases.
- **Collaboration Colloquium:** In February 2015, GKI hosted a dynamic, interactive convening to connect potential partners, mobilize available resources, and elaborate action plans aimed at delivering post-harvest loss solutions that use global networks in novel ways.

Results of GKI's Social Innovation Lab process include the creation of innovative, vetted options for integrated solutions poised to significantly reduce food loss, and a [vibrant network of stakeholders](#) poised to take forward these solutions. A recent [Stanford Social Innovation Review piece](#) that highlighted GKI's work with The Rockefeller Foundation further discusses the outcomes expected from Social Innovation Labs like GKI.

## OUR VISION FOR IMPACT:

Empowering diverse stakeholders to create **bold, integrated solutions** to complex challenges affecting the world's poorest and most vulnerable people. We do this by engaging diverse actors in a structured innovation design process that enables them to envision creative solutions and build the partnerships needed to create lasting change.

# ANNEX II: PARTICIPANTS AT THE COLLABORATION COLLOQUIUM & ALL LAB PARTICIPANTS 2013-2015

## Collaboration Colloquium Participants February 2015

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## Annex III: Additional data and resource offers from evaluations

During the Collaboration Colloquium, participants evaluated and offered resources to Stories of Future Impact presented by teams. While in-depth analysis on the level of each story (delivered at the end of the Colloquium) can be found in the Waste and Spoilage Innovators' Storybook, the companion document to this After Action Report, in this section please find summary data on resource offers across groups; average scores for feasibility, desirability, viability, and innovativeness; and details on specific resources offered to different teams, and by whom. Directly below, find a rough analysis of average scores across groups, followed by a breakdown of resource offers across groups. We have organized these by Challenge statement, because these statements guided action across the event (though the medium through which participants vetted these Challenges was Stories of Future Impact).

### Average scores across all six Challenges

Participants scored all presented Stories aimed at solving focal Challenges on their likely feasibility, desirability, viability, and innovativeness. In general, the scores across the entire group average at around 3.9 out of 5 for feasibility and desirability, and a bit lower for viability and innovativeness. This may speak to the challenge of creating financially viable solutions to persistent PHL problems, as well as the reality that many of the ideas put forth at the Collaboration Colloquium had been at the very least piloted elsewhere (often what was most novel was the combination of different innovations into a system of activities). Also interesting is the range of average scores on the different categories. For example, innovativeness has the largest range, with average scores ranging from 3.14 to 4.04 out of 5, speaking to substantial differences in perceived innovativeness of solutions developed at the Colloquium (the innovations associated with Challenge 3: "HMW increase infrastructure to build and manage collection centers?" were judged as least innovative; innovations associated with Challenge 2: "HMW attract more private sector investments for post-harvest technologies in processing/handling/preservation/storage?" were judged as most innovative). For more detail on scores attained by teams working on different Challenges, see the Waste and Spoilage Innovators' Storybook.

**Feasibility:** Can the innovation be realized using available or attainable expertise and materials?

Average score for challenges: 3.89 out of 5 (range: 3.67 – 4.04)

**Desirability:** Is the innovation wanted and liked by its main intended beneficiaries/users?

Average score for challenges: 3.91 out of 5 (range: 3.41 – 4.11)

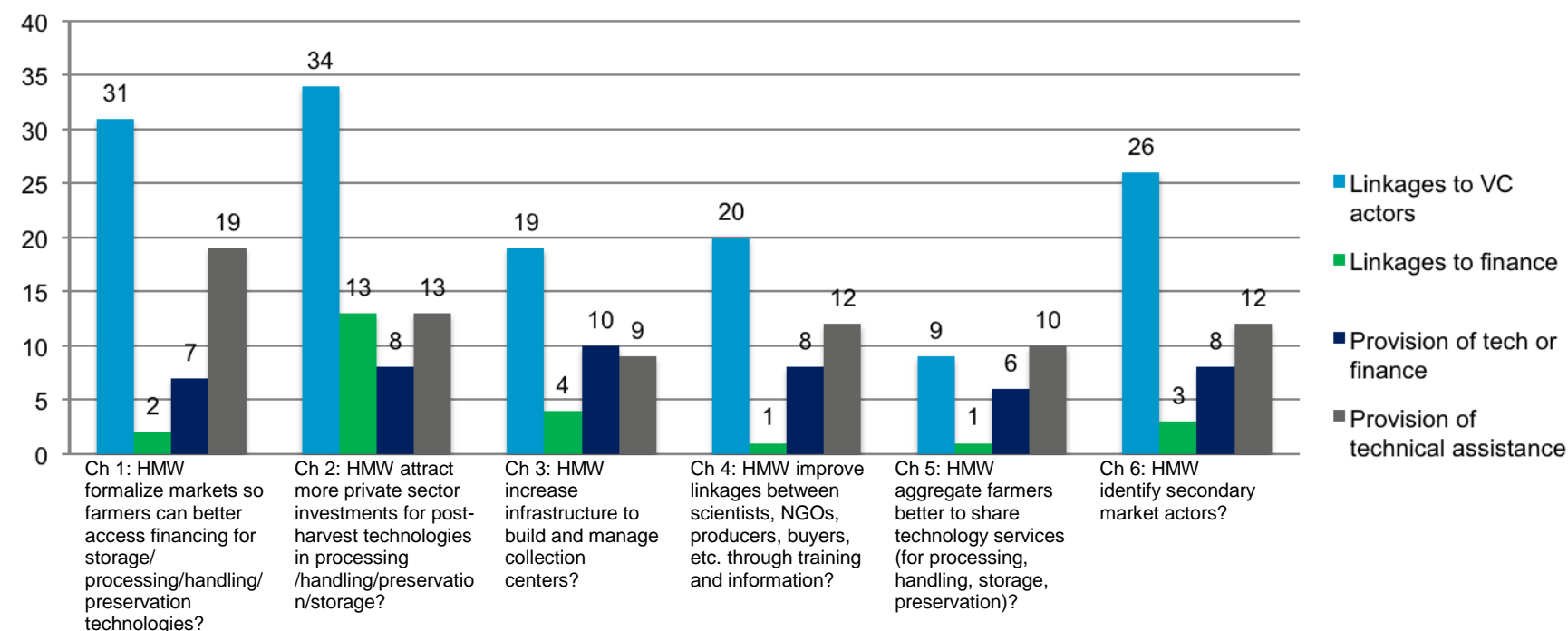
**Viability:** Is this innovation likely to be financially viable given market supply and demand?

Average score for challenges: 3.53 out of 5 (range: 3.27 – 3.76)

**Innovativeness:** Does the innovation build upon what has already been tried in novel ways?

Average score for challenges: 3.59 out of 5 (range: 3.14 – 4.04)

## Breakdown of resource and partnership offers for all Challenges



Collaboration Colloquium participants made offers of resources and partnerships during matchmaking around Innovation Diffusion Curves (see page 14) and in the evaluation they completed at the event's end. In analyzing this data, GKI divided resources into four categories: linkages to value chain actors (any actor involved in the value chain, including farmers, buyers, researchers, civil servants, etc.); linkages to finance; provision of technology or finance; and provision of technical assistance (training, advice, etc.).

Within these categories, most teams overwhelmingly received the greatest number of offers within the "Linkages to value chain actors" category, speaking to the importance of multi-sectoral networks to solving these Challenges, and likely the ability of Colloquium participants to connect others to individuals they know. Across Challenges, we can infer some differences between resources offered. For example, Challenge 2 received the most offers of linkages to finance. This may be due to the nature of the innovations described within this Challenge, which focus heavily on private sector investments in technology. By comparison, Challenge 3 focuses on developing infrastructure for collection centers. Unsurprisingly, this Challenge received a relatively high proportion of offers in "provision of tech or finance."

## Resources Offered for each Challenge

In this section, find resources offered on the level of each Challenge, split between the different categories of resources offered at the Colloquium. Offers represent resources or partners that Collaboration Colloquium participants had some influence over, though not necessarily resources that their own organization would be able to provide. Note that these lists do not represent all resources offered; some were offered anonymously, and are not included here.

### Challenge 1: How might we formalize markets so farmers can better access financing for storage/processing/handling/preservation technologies?

#### Category 1: Linkages to Value Chain actors

Person	Organization	Resource
Olivia Karanja	The Rockefeller Foundation	Local government
Isaiah Kirema	TechnoServe	Transporters
		Graders
		Local value addition players
Matt Lineal	Nuru International	Match up with farmer based organization (FBO)
		Trade associations
		Farmers cooperatives
Justin Mabeya	Land O' Lakes	Farmer organizations/co-ops
		County governments
John Makokha	African Agricultural Technology Foundation (AATF)	Seed companies to provide high yielding, drought tolerant, pest resistant crops
Anne Mbaabu	Alliance for a Green Revolution in Africa (AGRA)	NGOs working with FBOs to fast track adoption
		Leverage AGRA
		Feed the Future



Jean Njiru	Farm Africa	Processing companies for growth
		Extension
		Researchers
Esther Njogu	Equity Bank	Surveyors identify which areas of land to include
David Nyameino	AGRA	Super markets
		Transporters – farm to supermarket
		Extension services (AGRA)
Amos Thiongo	AgriPro Focus	Tech for Trade
Judith Oduol	World AgroForestry Centre	ICRAF (on value chain development)
		SNV
Fabrice Romeo	Juhudi Kilimo	Access to farmers' groups
		Supermarkets
		Distributors
Isaac Ruto	Equity Bank	Connection to trainers
Lusike Wasilwa	Kenya Agricultural and Livestock Research Organization (KALRO)	Standards for produce to attract markets
Rebecca Ndomo	DK Engineering	Primary consumers
		Secondary consumers

## Category 2: Linkages to finance

Person	Organization	Resource
Justin Mabeya	Land O' Lakes	Credit organizations
Anne Mbaabu	AGRA	Other donor investments, especially in access to finance
Jean Njiru	Farm Africa	Linkages to credit
		Financial institutions

### Category 3: Provision of technology or finance

Person	Organization	Resource
Jane Ambuko	University of Nairobi	Low-cost cold storage
Otim Bernard	Farmers Centre	ICT support
		PPP funding (revolving)
Olivia Karanja	The Rockefeller Foundation	De-risk capital to increase access to loans for SHFs to access tech
Isaiah Kirema	TechnoServe	Cold storage of produce
Rebeccah Ndomo	DK Engineering	Technology
Isaac Ruto	Equity Bank	Financing for smallholders

### Category 4: Provision of technical assistance

Person	Organization	Resource
Matt Lineal	Nuru International	Sustainable intensification model
Justin Mabeya	Land O' Lakes	Farmer mobilization
		Trust building strategies/training
John Makokha	AATF	Technical expertise in farmer contracting
Anne Mbaabu	AGRA	Feasibility study on cultural norms
		Ecological crop zone analysis to determine best crop
		Buy in at commodity level, sensitization to landowners and chiefs in region
Wanjeri Mbugua	Farm Concern International	Aggregation model
Jacky Mkindi	Tanzania Horticultural Association (TAHA)	Technical capacity in farmers' mobilization
Steve New	Fintrac Inc.	Analysis of marketing budgets and risk

Jean Njiru	Farm Africa	Facilitation on group development and business skills
		Business support services
Esther Njogu	Equity Bank	Training farmers and group training
Judith Oduol	World AgroForestry Centre	Research on the viability of the innovation
Isaac Ruto	Equity Bank	Financial education/training
Amos Thiongo	AgriPro Focus	2-2 trade toolkit for negotiation with farmers/traders
Lusike Wasilwa	KALRO	Provide market information in real time



## Challenge 2: HMW attract more private sector investments for post-harvest technologies in processing/handling/preservation/storage?

### Category 1: Linkages to Value Chain actors

Person	Organization	Resource
Tamirat Assefa	GIZ	Researchers
		FBOs
Alan Boswell	Twiga Neo Kenya	Private sector buyers who can push adoption
Olivia Karanja	The Rockefeller Foundation	Links with grantees
		Manufacturers of technologies
Isaiah Kirema	TechnoServe	Distribution/supply channel
		Service providers for mechanization of farm operations
Evelyn Kitsao	Coca-Cola	Researchers/consultants
Matt Lineal	Nuru International	Stanford Poverty Innovations Lab
Justin Mabeya	Land O' Lakes	National cereals and produce board
		Kenya National Farmers Federation
John Makokha	AATF	Linkages with existing agro-deal networks for distribution
		Purdue University
		AATF – for aflatoxin
Grace Muinga	AATF	Quality assurance companies
Jean Njiru	Farm Africa	Local CBOs
		Local NGOs to create awareness
		Distributors of tech
David Nyameino	AGRA	Connection to AGRA
		Private sector associations

Judith Oduol	World AgroForestry Centre	Link up with RRAF for technology adoption studies
		ICRAF
		SNV
Fabrice Romeo	Juhudi Kilimo	Access to clients to pilot/sell products
		Gov't to ease/facilitate investment for production of new tech
Isaac Ruto	Equity Bank	Link to FBO for aggregation and sale
		FBOs who can aggregate and sell in bulk
Amos Thiongo	AgriPro Focus	Opportunities for marketing through Agribusiness fairs
Luke Wasilwa	KALRO	Regulators
Rebeccah Wdomo	DK Engineering	Private sector
Sebsebe Zewde	GIZ Ethiopia	Offer to link with PPP department of GIZ

## Category 2: Linkages to finance

Person	Organization	Resource
Timothy Kinoti	Farm Africa	Financial linkages
Anne Mbaabu	AGRA	Impact investors to kickstart production and distribution
		Banks
		Donors
Jean Njiru	Farm Africa	Financial institutions
David Nyameino	AGRA	Connection to donors
Isaac Ruto	Equity Bank	Microfinance institutions
Amos Thiongo	AgriPro Focus	DOB Equity
		Social impact investments
		Acumen
		AECF

### Category 3: Provision of technology or finance

Person	Organization	Resource
Tamirat Assefa	GIZ	Cost sharing
Alan Boswell	Twiga Neo Kenya	Website of innovations with contacts promoted to private sector
Olivia Karanja	The Rockefeller Foundation	Catalytic philanthropic capital
Evelyn Kitsao	Coca-Cola	Transportation
Rebeccah Ndomo	DK Engineering	Technology
Isaac Ruto	Equity Bank	Financing for smallholders
Lusike Wasilwa	KALRO	Development of appropriate technologies

### Category 4: Provision of technical assistance

A[Person	Organization	Resource
Isaiah Kirema	TechnoServe	Stimulating demand from farmers
Matt Lineal	Nuru International	Could be involved in disseminating technology
Justin Mabeya	Land O' Lakes	Mobilization/training to distribute tech
Anne Mbaabu	AGRA	AGRA platform of trained agro-dealers as distributors of technologies
Jacky Mkindi	TAHA	Advocacy capacity building to the industry private sector bodies
Grace Muinga	AATF	Business profitability and sustainability analysis of technologies
Steve New	Fintrac Inc.	Systems to help scale up adoption of tech
Jean Njiru	Farm Africa	Creating awareness/training on storage technologies
Esther Njogu	Equity Bank	Offer awareness to private sector
Judith Oduol	World AgroForestry Centre	Research on how to partner with the private sector
Isaac Ruto	Equity Bank	Financial education/training



## Challenge 3: HMW increase infrastructure to build and manage collection centers?

### Category 1: Linkages to Value Chain actors

Person	Organization	Resource
Tamirat Assefa	GIZ	NGOs
		CBOs
Olivia Karanja	The Rockefeller Foundation	Link with AGRA programs to deal with policy
		Local government
		Private sector
Matt Lineal	Nuru International	Link to research institutions
		Trade associations
Anne Mbaabu	AGRA	Exporters
		Secondary buyers
Rebeccah Ndomo	DK Engineering	Media
		Government
		Primary consumers
		Secondary consumers
Jean Njiru	Farm Africa	Business support organizations
Esther Njogu	Equity Bank	Markets
Fabrice Romeo	Juhudi Kilimo	Local authorities
Isaac Ruto	Equity Bank	Link to SMS platform company to roll out market info systems
Lusike Wasilwa	KALRO	Connection to trainers
		Policy makers

### Category 2: Linkages to finance

Person	Organization	Resource
Tamirat Assefa	GIZ	Investors
Isaiah Kirema	TechnoServe	Access to finance
Anne Mbaabu	AGRA	Bring in local government to build facilities
Jean Njiru	Farm Africa	Financial institutions
Willis Owino	Jomo Kenyatta University of Agriculture and Technology	Link to financial institutions

### Category 3: Provision of technology or finance

Person	Organization	Resource
Olivia Karanja	The Rockefeller Foundation	Investment to establish farmer-led and market-led collection centers
Rebeccah Ndomo	DK Engineering	Technology
Steve New	Fintrac Inc.	Infrastructure investment fund
Jean Njiru	Farm Africa	Support rural businesses
Isaac Ruto	Equity Bank	Financing for smallholders
Amos Thiongo	AgriPro Focus	Co-investment on dissemination and documentation on successful cases of collection centers
		Platform for dissemination on businesses cases (success) on collection centers
Lusike Wasilwa	KALRO	Appropriate tech along value chain

### Category 4: Provision of technical assistance

Person	Organization	Resource
Tamirat Assefa	GIZ	Strategy for infrastructure development
Matt Lineal	Nuru International	FBO and producer model
Steve New	Fintrac Inc.	Market and feasibility studies
		Capacity building in post harvest research and training
		Establish value chain analysis and market info systems
Esther Njogu	Equity Bank	Running and management of collection centers
		Awareness creation
Judith Oduol	World AgroForestry Centre	Research needed to establish scalability
Isaac Ruto	Equity Bank	Financial education/training

## Challenge 4: HMW improve linkages between scientists, NGOs, producers, buyers, etc. through training and information?

### Category 1: Linkages to Value Chain actors

Person	Organization	Resource
Tamirat Assefa	GIZ	Link to government
Olivia Karanja	The Rockefeller Foundation	Private sector
Isaiah Kirema	TechnoServe	Fabricators to help with availability of technology
		Entrepreneurs
Anne Mbaabu	AGRA	Partnerships
		Bring in value chain actors
Jacky Mkindi	TAHA	Link to mobile technology partners
		Link to government
Rebeccah Ndomo	DK Engineering	Communication and information platforms
		Marketing
		Primary consumers
		Secondary consumers
Jean Njiru	Farm Africa	Markets
Judith Oduol	World AgroForestry Centre	End users need to be part of the research consortium
		Market actors/private actors
Isaac Ruto	Equity Bank	Connection to trainers
Amos Thiongo	AgriPro Focus	AgriPro Focus
Lusike Wasilwa	KALRO	Government



## Category 2: Linkages to finance

Person	Organization	Resource
Jean Njiru	Farm Africa	Financial institutions

## Category 3: Provision of technology or finance

Person	Organization	Resource
Tamirat Assefa	GIZ	Financial support
Isaiah Kirema	TechnoServe	Info sharing through mobile
Benjamin Makai	Safaricom	Co-investment for seed funding
		Online presence/infrastructure
Rebeccah Ndomo	DK Engineering	Information platforms
Jean Njiru	Farm Africa	Provide business support
Isaac Ruto	Equity Bank	Financing for smallholders

## Category 4: Provision of technical assistance

Person	Organization	Resource
Olivia Karanja	The Rockefeller Foundation	Neutral “broker”
Matt Lineal	Nuru International	Contribute as stakeholder
Benjamin Makai	Safaricom	Awareness campaign via SMS blasts
Anne Mbaabu	AGRA	Quality enforcement
Grace Muinga	AATF	Expertise in facilitation/management
Steve New	Fintrac Inc.	Participant in cooperative approach
Esther Njogu	Equity Bank	Way of aggregating farmers
		Value addition
Judith Oduol	World AgroForestry Centre	Operationalize idea under different constraints
Isaac Ruto	Equity Bank	Financial education/training
Lusike Wasilwa	KALRO	Developing mobile applications

## Challenge 5: HMW aggregate farmers better to share technology services (for processing, handling, storage, preservation)?

### Category 1: Linkages to Value Chain actors

Person	Organization	Resource
Asgar Ali	Center of Excellence for Postharvest Biotechnology (CEPB), University of Nottingham Malaysia	Market for milled flour
Olivia Karanja	The Rockefeller Foundation	Rockefeller Foundation partner networks
		Local government
Matt Lineal	Nuru International	ACDI/VOCA
Rebeccah Ndomo	DK Engineering	Primary consumers
		Secondary consumers
Jean Njiru	Farm Africa	Private sector as conveners
		Markets
Isaac Ruto	Equity Bank	Connection to trainers

### Category 2: Linkages to finance

Person	Organization	Resource
Jean Njiru	Farm Africa	Financial institutions

### Category 3: Provision of technology or finance

Person	Organization	Resource
Jane Ambuko	University of Nairobi	Innovation platforms to create awareness
Isaiah Kirema	TechnoServe	Echo mobile SMS M&E feedback
Anne Mbaabu	AGRA	Investment for aggregation centers
Rebeccah Ndomo	DK Engineering	Technology
Isaac Ruto	Equity Bank	Financing for smallholders

### Category 4: Provision of technical assistance

Person	Organization	Resource
Asgar Ali	CEPB	Scientific study regarding nutrient content and shelf life
Jane Ambuko	University of Nairobi	Collect data on trials
Matt Lineal	Nuru International	Currently implement a FBO/sustainable intensification model
Wanjeri Mbugua	Farm Concern International	Commercial perspective
Steve New	Fintrac Inc.	Market analysis
		Business planning
Jean Njiru	Farm Africa	Convening various actors
Esther Njogu	Equity Bank	Capacity building
Judith Oduol	World AgroForestry Centre	Assessment of viability
Isaac Ruto	Equity Bank	Financial education/training



## Challenge 6: HMW identify secondary market actors?

### Category 1: Linkages to Value Chain actors

Person	Organization	Resource
Tamirat Assefa	GIZ	Supermarkets
		Hotels
		Cafeterias
		Researchers
		Agro processors
Olivia Karanja	The Rockefeller Foundation	Organized value chains to attract secondary markets
		ICT platforms
Timothy Kinoti	Farm Africa	Tech for Trade
Matt Lineal	Nuru International	Trade associations
Justin Mabeya	Land O' Lakes	Link to policy developers
John Makokha	AATF	Kevian
		Coca Cola
Anne Mbaabu	AGRA	Private sector
		Hotels
		Schools
		Supermarkets
Grace Muinga	AATF	Trainers on value addition
Rebeccah Ndomo	DK Engineering	Primary consumers
		Secondary consumers
		Manufacturers
		Markets
Jean Njiru	Farm Africa	Access to client base
		Potential markets
Isaac Ruto	Equity Bank	Connection to trainers
Amos Thiongo	AgriPro Focus	Farm to firm relationship brokering
Lusike Wasilwa	KALRO	Linkage between researchers and stakeholder
		Researchers/academic involvement

## Category 2: Linkages to finance

Person	Organization	Resource
Jacky Mkindi	TAHA	Industry financial database
Jean Njiru	Farm Africa	Credit institutions

## Category 3: Provision of technology or finance

Person	Organization	Resource
Mumbi Kimathi	Farm Concern International	Innovation in chipping and low cost tech
Rebeccah Ndomo	DK Engineering	Technology
Judith Oduol	World AgroForestry Center	Cost-effective post harvest tech
Isaac Ruto	Equity Bank	Financing for smallholders
Lusike Wasilwa	KALRO	Product diversification tech
		Tech that lengthens shelf-life
		Appropriate technology (e.g. solar tech)

## Category 4: Provision of technical assistance

Person	Organization	Resource
Tamirat Assefa	GIZ	Advisory service
Isaiah Kirema	TechnoServe	Business models
Justin Mabeya	Land O' Lakes	Training on building innovation platform
Anne Mbaabu	AGRA	Set up market assistance for aggregation
Wanjeri Mbugua	Farm Concern International	Aggregation model and systems
Jacky Mkindi	TAHA	Post-handling solutions
Rebeccah Ndomo	DK Engineering	Marketing
Steve New	Fintrac Inc.	Technical expertise on mango products and markets
Jean Njiru	Farm Africa	Setting up manual information service for aggregation
Isaac Ruto	Equity Bank	Financial education/training
Lusike Wasilwa	KALRO	Develop new products