TECHNOSERVE
BUSINESS SOLUTIONS TO POVERTY

TechnoServe Initiative for Inclusive Agricultural Business Models

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REFLECTIONS AND LESSONS LEARNED

In 2014, TechnoServe began a conversation with the Ford Foundation on the intersection of multinational corporations (MNCs) and sustainable smallholder production. We shared our observations about the situation: MNCs had made bold commitments to advance their investment into sustainable supply chain engagement with smallholders, but there seemed to be challenges in driving traction at scale across the estimated 200 million smallholder farmers participating in commercial supply chains around the world.[1] At that point, we had been working with MNCs for a number of years on their inclusive business agendas and had some observations on the challenges:

- MNCs were struggling to convert broad commitments into tangible activities;
- They were having trouble mobilizing resources due to gaps in the business case; and
- Internal incentives were often poorly aligned to drive action.

We posited that businesses needed support to convert commitments into concrete plans, to generate a robust business case, and to build internal alliances that would drive scale. MNCs often struggle to do this on their own, given the dearth of relevant benchmarks, lack of visibility into the parts of their supply chains that involve smallholder farmers, and limited expertise in how to improve smallholder performance. Given TechnoServe's experience in delivering solutions to smallholder farmers, the Ford Foundation agreed to co-fund our support to MNCs in addressing these topics, with the aim of catalyzing companies to scale business models that are inclusive of smallholder farmers. Lessons derived from this partnership would also be shared publicly so that other MNCs could operationalize their own plans to drive commercial value alongside impact for smallholder farmers.

Since that first conversation, TechnoServe, with the support of the Ford Foundation, has worked with The Coca-Cola Company, The Kellogg Company, SABMiller/AB InBev and Syngenta to test whether this hypothesis was right and to develop solutions to address the barriers these companies faced. These projects span a broad variety of contexts: sustainable mango production in India, local rice and date sourcing in Egypt, smallholder grain and cassava supply chains in Uganda and Mozambique, and tomato and potato seed distribution in Kenya. These initiatives alone have the potential to create sustained positive benefits for nearly 200,000 smallholder farmers. Replication at scale within these MNCs and others has the potential to benefit millions of smallholder farming families.

So what did we learn? What are the main themes and challenges we identified, and did these line up with our ingoing hypothesis? Given our experience, what would we recommend to MNCs that aim to drive inclusive business models with smallholder farmers at scale?

Based on five common themes across TechnoServe's experience with these MNCs, we developed the following guidelines for companies seeking to implement inclusive business models:

1. **It is critical to articulate and drive internal alignment on the commercial objectives of an inclusive agricultural business model.**

1. Includes 35 million smallholders in "tight" commercial value chains (i.e., direct contracts with commerwcial buyers) and 165 million smallholders in "loose" commercial value chains (i.e., supply to commercial buyers via traders and middlemen) as estimated in CGAP's "Segmentation of Smallholder Households: Meeting the Range of Financial Needs in Agricultural Families," April 2013.

Conversations about inclusive agricultural business models often start with the desired social and/or environmental impact for smallholder farmers and their families and communities. Underlying commercial objectives are often far muddier and more fragmented in their locus within the MNC:

- Is the desired source of value reduced procurement costs and security of supply (what could be loosely be defined as "operational value")?
- Is it driven by a desire to strengthen relations with the government or other aspects of the license to operate?
- Is there a broader reputational component to the value, with either consumers or civil society? What type of reputational value is key and how should this be included and quantified in the business case?

If the rationale for pursuing an inclusive business model fails to clearly identify and articulate the commercial objectives, it is likely that the strategy developed will be off-target and will eventually be deprioritized.

Recommendation: Start by defining concrete commercial and social impact objectives. Work with key internal stakeholders across divisions within the company to define and align on specific objectives for the inclusive business model, including: clarify commercial goals (e.g., increase volume and quality of local supply, reduce supply chain losses, maintain competitive prices, strengthen local license to operate) and specify and quantify social impact goals (e.g., increase smallholder incomes, empower women and youth in the supply chain).

2. High-level concepts of value and impact are insufficient: inclusive business models require detailed, quantifiable business cases in order to gain traction within MNCs.

The value potential for more productive, higher-quality and resilient smallholder production is clear. It includes lower costs of production, greater security of supply, reduced processing costs, development of innovations (such as reduced waste efficiency) that can be tested and applied across supply chains, and definition of value propositions for an emerging set of consumers for both agricultural and non-agricultural products. The impact in terms of improved livelihoods is also clear to stakeholders across the sector in general, and to MNCs specifically.

However, many MNCs struggle to take the next step and quantify the net returns of a business case that realizes this value. MNCs that successfully drive inclusive business adopt a robust and detailed approach to building a quantifiable business case. This business case takes a conservative view on the potential returns from an investment in smallholder farmers (either as suppliers, as in the case of food and beverage companies, or as customers, as in the case of agribusinesses) and it ends with a specific return on investment (ROI) figure to target. Without that business case, conversations between global and local budget holders are often misaligned, and it is difficult to come to an agreement to proceed.

Recommendation: Keep the business case simple. Define cost per farmer, incremental project profit per farmer reached (as supplier or customer), incremental income increase for farmer, and incremental net revenue benefit to the company. Pick a relevant metric (ROI, IRR, NPV) as a standardized way to assess options. Push to quantify all sources of value. Where quantification is not possible (e.g., consumer reputational value), develop a standardized process to include these sources of value in decision-making.

3. Strategy does not stop with the business case: achieving internal alignment is often equally important and challenging.

Where the business case for realizing value and impact is clear, a tremendous amount of effort is still required to achieve internal alignment and trigger decisions and investment. Sustainability teams (often centrally located) need to align their objectives and projected results with local procurement or business development teams, who in turn then need to seek approval or acceptance from country-level or regional leadership.

Given there are often alternatives to inclusive business models that may carry lower risk and/or cost, internal champions are almost always required at the country, regional and headquarters levels. When part of the investment comes from headquarters as an incentive for local action, as is often the case, an additional level of internal complexity is introduced.

Recommendation: Identify internal champions at the start of the initiative and define how to include them throughout the process. Set up a steering group that includes local, regional, and HQ stakeholders from procurement, sustainability, corporate affairs/government relations, business development and overall management. Bring them along the entire process from the start, including the definition of overall objectives, tracking and measurement of performance, and the need for any course correction or strategic realignment.

4. Operational excellence is required to realize that value.

Working in agriculture carries particular risks — uncertain weather, changing soil and climatic factors, pests and diseases — and working with thousands of smallholder farmers compounds these risks. The potential for operational failure is high. On top of this, smallholder farmers themselves face serious risks when operating in a commercial supply chain — for example, failing to meet company quality specifications for reasons outside of their control, such as climactic variation.

Therefore, even where a positive business case has been identified, and internal alignment has been achieved, skillful implementation is required to realize potential value and impact. Even where models are successful in one context, their replication in another requires well-informed adaptation to local traditions and cultural norms and high-quality delivery with motivated and capable partners.

Recommendation: Detail complexities of the operational plan. Define the flow of incentives and methods of trust-building; specific knowledge, skill and other capacity gaps among supply chain actors; pricing structures; the roles of intermediaries and suppliers; and priority operational risks and mitigation strategies. Have clear definitions of required capabilities to successfully operationalize the model and map to available partners if capabilities are not available internally.

5. Quantify the impact while capturing a broader set of social and commercial key performance indicators to ensure holistic delivery.

Finally, measuring and communicating impact is critical to securing the required internal and external support to scale and replicate successful models. MNCs that are most effective in measuring and communicating the impact of inclusive business models orientate their actions around one or two priority impact metrics that resonate internally and externally. The company's broader set of sustainability key performance indicators (KPIs) is then nested under these headline metrics.

It is also important to understand which of these align best with the internal performance indicators of the core business, so that commercial value generated from the model's implementation can be tracked and decisions made accordingly. For example, improved smallholder crop yield and quality is a common impact metric that also tracks closely to procurement KPIs. Without compelling, real-world evidence of impact on commercial KPIs, inclusive business models will stall out at the pilot stage, never reaching replication and scale.

Recommendation: Focus on the impact and value story, and complement it with broader KPIs. Identify the priority metrics for impact (e.g., crop income increase) and commercial value (e.g. sourcing volume, quality, price) that correspond directly to the business case, can be measured in each agricultural season and can be used to assess multiple initiatives. Complement beneficiary impact and business value metrics with a broader set of KPIs that cover a full range of corporate sustainability criteria (e.g., food security, women's empowerment, household income/Progress out of Poverty Index, access to clean water) and may be measured less frequently. Where possible, disaggregate KPIs by gender.

In some ways, these lessons seem pertinent to any business problem: understand your objectives, quantify the business case, align internally, deliver at a high-quality level, and track impact. Yet when it comes to the design and implementation of inclusive business models, companies often forget these simple tenets. Conversations can get caught up in how to achieve global sustainability goals; or, the designs may align with external imperatives but lack corresponding internal commercial value; or, they might focus on corporate social responsibility initiatives of interest to particular champions but less connected to the company's core business. These other topics are often critical and need to be addressed, but without the above-mentioned building blocks, inclusive business models struggle to be successful.

We hope this initiative will catalyze additional multinational companies to pursue inclusive agricultural business models that benefit smallholder farmers and deliver commercial value. The case studies that follow provide an "insider" view into how some of the largest and most influential food and beverage companies and agribusinesses approach inclusive business. They provide relevant benchmarks, detail practical approaches and offer concrete learnings for those seeking to pursue similar models. In addition to sharing these case studies with a broad group of stakeholders, we aim to further refine our collective understanding of the challenges in inclusive business and how they can be overcome through partnership and application of lessons learned with a broader array of companies.

TECHNOSERVE
BUSINESS SOLUTIONS TO POVERTY

The Coca-Cola Company

TechnoServe Initiative for Inclusive Agricultural Business Models

The Coca-Cola Company: A Model for Promoting Sustainable Agriculture Practices in Smallholder Supply Chains

EXECUTIVE SUMMARY

Multinational companies have made bold sustainability commitments with potential to effect substantial poverty reduction. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in designing win-win approaches to meet their sustainability commitments related to smallholder farmers. This involved developing inclusive and sustainable business models that could both improve farmer livelihoods and reduce their vulnerability, while creating commercial value for the company. This case study documents the experience of one of these four companies, The Coca-Cola Company, including the company's specific opportunity, the model designed to capture this opportunity, and key takeaways that can be applied by other industry players.

Developing sustainable smallholder supply chains can improve farmer livelihoods and reduce their vulnerability while enhancing The Coca-Cola Company's license to operate and security of supply. The Coca-Cola Company's Sustainable Agriculture Guiding Principles (SAGPs) are a cornerstone of its strategy for achieving its commitment to sustainably source its key ingredients by 2020. These principles promote sustainable social policies, such as eliminating forced labor on farms, as well as conservation practices including water saving techniques and soil protection, which can reduce farmer vulnerability in the face of climate change. They also promote practices that can improve farmer livelihoods by increasing yields and quality and optimizing inputs and crop maintenance. In addition to improving farmer livelihoods and reducing vulnerability, adoption of SAGPs can help to secure Coca-Cola's supply of agricultural ingredients, which comprise an estimated 50 percent of procurement expenditure in the company's system.[1] Coca-Cola faces increasing risks of higher costs and in security of supply for key agricultural ingredients due to a combination of growing demand alongside reduced productivity resulting from changing weather patterns and other market dynamics. These forces also pose potential food security risks to communities around the globe.[2] Smallholder-dominated supply chains represent a significant portion of Coca-Cola's agricultural sourcing and are particularly vulnerable to these risks, given their inherently complex and non-transparent nature, as well as smallholder farmers' limited knowledge of, and access to, modern production techniques. As a global leader in the food and beverage industry, Coca-Cola has a unique opportunity not only to build resilience across a broad set of smallholder supply chains within its own system, but also to influence those of its peers by setting an example for others to follow.

Using mango in India as a platform, TechnoServe supported Coca-Cola and one of its key pulp suppliers in designing a tailored, supplier-led model for promoting sustainability within smallholder supply chains. The unique complexities of smallholder supply chains make traditional approaches to promoting sustainability with global suppliers and large commercial farmers unviable. Therefore, Coca-Cola focused on developing a tailored, supplier-led model for smallholder supply chains that could be piloted within its mango supply chain in India, and then replicated across other key smallholder crops and geographies in its full sourcing system. After identifying gaps between the prevailing practices of smallholder mango farmers in India and The Coca-Cola Company's SAGPs, those related to economic benefits for farmers and risk mitigation for farmers were prioritizied. TechnoServe then helped Coca-Cola and its supplier to design a four-tenet model to address priority gaps. First, hands-on training with a focus on farming as a business would be provided to both male and female farmers through Farmer Field Schools. Second, additional strategies would be im-

1. http://www.coca-colacompany.com/stories/our-approach
2. Coca-Cola Annual Report on Form 10-K, February 2016

plemented to mitigate smallholder risk and boost farmer adoption of the sustainable practices promoted in training. Third, traceability to the farm level would be improved by formalizing key roles within the existing supply chain structure using record-keeping and supporting economic incentives. Finally, smallholder impact would be monitored and evaluated utilizing Coca-Cola's standard program metrics, and independent audits would be performed to evaluate continuous improvement of SAGP adoption.

BACKGROUND

In recent years, an increasing number of multinational companies have made bold sustainability commitments with the potential to effect substantial poverty reduction. In recognition of this great potential, the Ford Foundation and TechnoServe have partnered to support multinational companies in achieving their sustainability commitments related to smallholder farmers. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in developing inclusive and sustainable business models that could improve farmer livelihoods and reduce their vulnerability, while creating commercial value for the company. This case study documents the experience of one of these four companies, The Coca-Cola Company, including the company's specific opportunity, the model designed to capture this opportunity through Coca-Cola's partnership with TechnoServe, and key takeaways that can be applied by other industry players.

The Coca-Cola Company has committed to sustainably source its key agricultural ingredients by 2020.[3] These key ingredients are: cane and beet sugar, corn (high fructose corn syrup), stevia, tea, coffee, palm oil, soy, oranges, lemons, grapes, apples, mangoes, and pulp and paper fiber for packaging. Coca-Cola's sustainability commitment is built on principles that protect the environment, uphold workplace rights and help build more sustainable communities. The company's programs are focused on economic opportunity, with an emphasis on female farmers and environmental sustainability. Because smallholder farmers constitute a sizable proportion of Coca-Cola's sourcing in various countries and commodities, supporting improved livelihoods and reduced vulnerability among smallholder farmers is a critical component of this sustainable sourcing commitment.[4]

Coca-Cola defines sustainable sourcing through its Sustainable Agriculture Guiding Principles (SAGPs). This comprehensive set of principles — focused on human and workplace rights, environmental stew-

Exhibit 1: Coca-Cola Sustainable Agriculture Guiding Principle (SAGP) requirements by category*

Human and Workplace Rights

1. Freedom of Association and Collective Bargaining
2. Prohibit Child, Forced, or Abuse of Labor
3. Eliminate Discrimination
4. Work Hours and Wages
5. Provide a Safe and Healthy Workplace
6. Community and Traditional Rights

Environmental Protection

7. Water Management
8. Energy Management and Climate Protection
9. Conservation of Natural Habitats and Ecosystems
10. Soil Management
11. Crop Protection

Management Systems

12. Harvest and Post-harvest Handling
13. Reproductive Material Identity, Selection, and Handling
14. Management Systems, Record-keeping, and Transparency
15. Business Integrity

**A subset of these criteria is applicable to smallholder farmers. Each principle includes a number of specific underlying criteria. Out of a total of 31 criteria applicable for smallholders, they must achieve 22 to be SAGP compliant.*

3. Coca-Cola 2014/15 Sustainability Report
4. Coca-Cola defines smallholder farmers as those who cultivate less than 2 hectares of land

ardship and responsible farm management systems — lays out expectations for suppliers and benchmarks supplier performance. While SAGPs are Coca-Cola-specific standards, the company also accepts and encourages equivalent, cost-effective third party certifications that have been evaluated for parity and are globally recognized. Such third party certifications for smallholder farmers include, but are not limited to, Rainforest Alliance, Fairtrade, and the Sustainable Agriculture Initiative (SAI) Platform.

COCA-COLA'S OPPORTUNITY

SECURE FUTURE SUPPLY AND LICENSE TO OPERATE WHILE IMPROVING SMALLHOLDER LIVELIHOODS AND REDUCING VULNERABILITY

Sustainable agricultural supply chains are vital to the continuity of Coca-Cola's future business operations. An estimated 50 percent of the procurement expenditure in Coca-Cola's system goes toward agricultural ingredients.[5] Moreover, the company faces increasing risks of higher costs and insecurity of supply for key agricultural ingredients, due to a combination of growing demand and reduced productivity as a result of changing weather patterns and other market dynamics. These forces also pose potential food security risks to communities around the globe.[6]

Improving the resilience of smallholder-dominated supply chains enhances Coca-Cola's license to operate and supports security of supply for its key ingredients. Crops that are grown predominately by smallholder farmers represent a significant portion of Coca-Cola's sourcing for its five priority fruits, with an estimated 750,000 smallholder farmers contributing to Coca-Cola's key fruit supply chains.[7] Smallholder-dominated supply chains are particularly vulnerable to sustainability and related food-security issues, given their inherently complex and non-transparent nature, as well as smallholder farmers' limited knowledge of, and access to, modern production techniques. Given Coca-Cola's position as a global leader in the food and beverage industry, it has a unique opportunity not only to build resilience across a broad set of smallholder supply chains within its own system, but also to influence those of its peers by setting an example for others to follow.

Adoption of Coca-Cola's SAGPs can improve smallholder livelihoods and reduce their vulnerability through improved social, environmental and economic sustainability. Coca-Cola's SAGPs promote sustainable social policies, such as eliminating forced labor and hazardous child labor on farms, as well as conservation practices including water saving techniques and soil protection. Coca-Cola's SAGPs can also help farmers to realize higher incomes by optimizing inputs and crop maintenance, which can reduce farmer expenditure. In addition, the SAGPs include practices that can improve productivity and quality, enabling farmers to increase income by selling greater quantities of higher quality fruit that can garner better market prices. Finally, the SAGPs encourage smallholders to establish business rigor in their farm operations, which can help sustain these gains over the long term.

Farmers sort mangoes in Chittoor district of Andhra Pradesh.

5. http://www.coca-colacompany.com/stories/our-approach
6. Coca-Cola Annual Report on Form 10-K, February 2016
7. TechnoServe analysis

CAPTURING THE OPPORTUNITY

DEVELOPING A MODEL FOR PROMOTING SUSTAINABLE AGRICULTURE PRACTICES IN SMALLHOLDER SUPPLY CHAINS

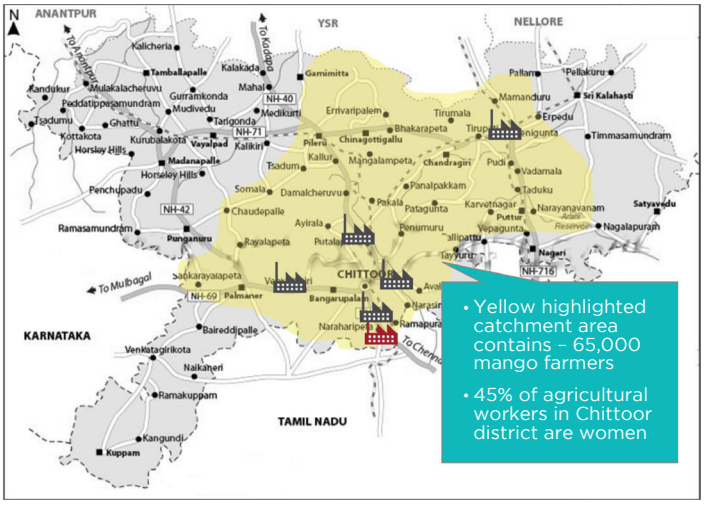
Promoting sustainable agricultural practices within smallholder-dominated crops requires a different approach from that which Coca-Cola and many of its peers have employed within its more traditional supply chains involving global suppliers and large commercial farmers. Some of the unique complexities of smallholder-dominated supply chains include:

- **Lack of traceability to farm level:** Smallholder farmers often sell their fruit to intermediaries (i.e., multiple layers of traders and wholesalers), who in turn sell to local processors or suppliers from which Coca-Cola primarily purchases. Intermediaries generally mix supply from multiple farmers, reducing traceability to individual farms and resulting in significant variation in Coca-Cola's underlying farmer base each season.
- **Large variations in fruit quality and yield:** Smallholder farmers often do not employ best agricultural practices due to lack of knowledge or limited access to finance and quality inputs, such as fertilizer tailored to soil needs. However, even when employing best agricultural practices, farmers may fail to meet company quality requirements due to factors outside of their control, such as changing weather and rainfall patterns.
- **Limited visibility into sustainability practices:** Processors select fruit based on quality specifications without knowing details of practices utilized on farms.
- **Competing fresh markets:** For crops like mango, in which there is a market for fresh produce alongside a market for processing, smallholders often get the best price from the fresh market; therefore, if quality alone improves without simultaneous increases in yield, processor security of supply risks could be aggravated.
- **High degree of farmer risk:** Smallholder farmers face tremendous risk. Any additional or new practices that they are asked to adopt should promote environmental and social sustainability while also improving farmer livelihoods and reducing their vulnerability.

Furthermore, many of the smallholder-dominated value chains within Coca-Cola's priority fruits fall outside of existing certification schemes, which in many cases provide a solution to addressing the challenges above.

Coca-Cola selected mango sourcing in India as a platform to develop a tailored model for promoting sustainability in smallholder supply chains. Mango in India is one of Coca-Cola's largest smallholder-driven supply chains. Coca-Cola identified one of its top mango pulp suppliers located in the Chittoor District of South India to work closely with

Exhibit 2:
Chittoor District catchment area for India mango supplier



Partner TCCC mango pulp-processing facility

Other mango pulp processing facility

TechnoServe to conduct the analysis required to inform development of the approach. The findings from the research carried out in India form the basis of a broader model that can be replicated across other crops and geographies to support widespread SAGP adoption in other smallholder-dominated supply chains, with the understanding that nuances across different geographies and crops necessitate appropriate customization.

THE ANALYSIS

Determining gaps between prevailing smallholder practices and Coca-Cola's SAGPs was the first step in developing the model. TechnoServe supported Coca-Cola's pulp supplier to assess the mango value chain in its sourcing region through a combination of in-depth primary interviews and orchard visits with local smallholder farmers, as well as interviews with local experts and other value chain actors including traders, retailers and government agriculture officers. Existing published research and government databases complemented the interviews.

The analysis included defining the geographic parameters of the supplier's sourcing area (i.e., catchment area) in the Chittoor District and estimating the number of smallholders and share of women in this area *(Exhibit 2)*.

The next step was assessing smallholder practices in this catchment area against SAGPs applicable to smallholders to determine their current compliance status (*Exhibit 3*), and identifying potential risks to smallholder livelihoods and resilience as a result of adopting SAGPs. An understanding of the local market dynamics, including the role of women, was used to identify barriers to achieve Coca-Cola's sustainable sourcing commitment, as well as existing value chain structures that could be built upon to promote sustainable practices.

SAGP gaps were then prioritized, taking into consideration economic benefit to farmers. TechnoServe supported Coca-Cola and its supplier in assessing the degree to which each SAGP identified as a gap would deliver economic benefit to smallholder farmers, in order to mitigate any unintended risks farmers might face in adopting the SAGPs, and to increase the likelihood of practice adoption. While a total of 20 SAGP gaps were iden-

Exhibit 3:
Smallholders' current SAGP compliance status

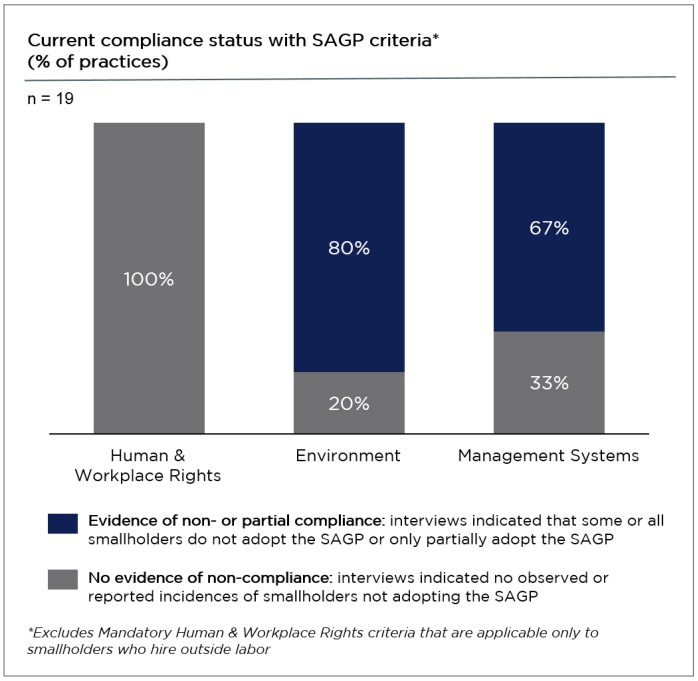


Exhibit 4: Current Smallholder Practices for High Priority SAGP Gaps

SAGP category	SAGP criteria	Current practice
Environment	Crop protection • Storage/application • Safe disposal • Protective clothing • Integrated Pest Management (IPM)	• Limited protective gear during agrochemical application • After washing empty containers, pouring water back onto field • Burying or burning of containers • Application of agrochemicals even if no actual presence of pests
	Water management • Record volumes • Comply with local laws • Efficient irrigation • Water savings • Runoff management	• Furrow or flood irrigation instead of drip • Broken drips not repaired • Water usage not closely monitored or recorded • Unawareness of local environmental and water laws
	Soil management	• Under or over application of fertilizer due to absence of soil testing
Management Systems	Harvest/post-harvest handling	• Lax enforcement by smallholders of proper food safety and hygiene processes • Harvesting/post-harvest handling practices learned informally from family members or neighbors
	Record-keeping and management systems	• No written records of practices or procedures • No objectives set

tified, 17 were ultimately prioritized for Coca-Cola to address. *Exhibit 4* provides a summary of the current smallholder practices in the categories of Environment and Management Systems, for which farmers either do not currently employ the corresponding SAGP or only employ it partially.

THE MODEL

TechnoServe supported Coca-Cola and its supplier in developing a four-tenet model to address priority gaps.

First, hands-on training with a focus on farming as a business would be provided to both male and female farmers through Farmer Field Schools (FFS). Farmers' lack of knowledge of practices, how to apply them on their farms, and the value that could be derived within their farm operations from their application were key drivers behind priority SAGP gaps. Therefore, TechnoServe worked with Coca-Cola and its supplier to design a tailored training program, using a FFS delivery model, as the foundation of Coca-Cola's approach to promoting sustainability in the value chain. Under the FFS model, groups of 30 to 35 farmers are formed and a demonstration plot is developed on an aggregator or lead farmer's land to showcase best practices and allow for hands-on training. Local trainers meet with several farmer groups regularly at demo plots to train farmers using practical activities at critical points during the season. They then visit farmers individually during the season to provide additional guidance. "Farming as a Business" training lies at the heart of the FFS model and drives high retention and practice adoption rates; farmers not only learn how to apply practices, but also why — the value that each practice can provide for a farmer's business. Women farmers would be targeted for training alongside men, as they are responsible for many of the tasks related to priority SAGP gaps but are often excluded from formal agricultural training. Therefore, incorporating women directly into farmer field schools would not only improve SAGP adoption, but also support women's empowerment by expanding their knowledge of best practices. While Coca-Cola and its supplier considered several training models, they ultimately selected FFS due the higher likelihood of achieving practice adoption

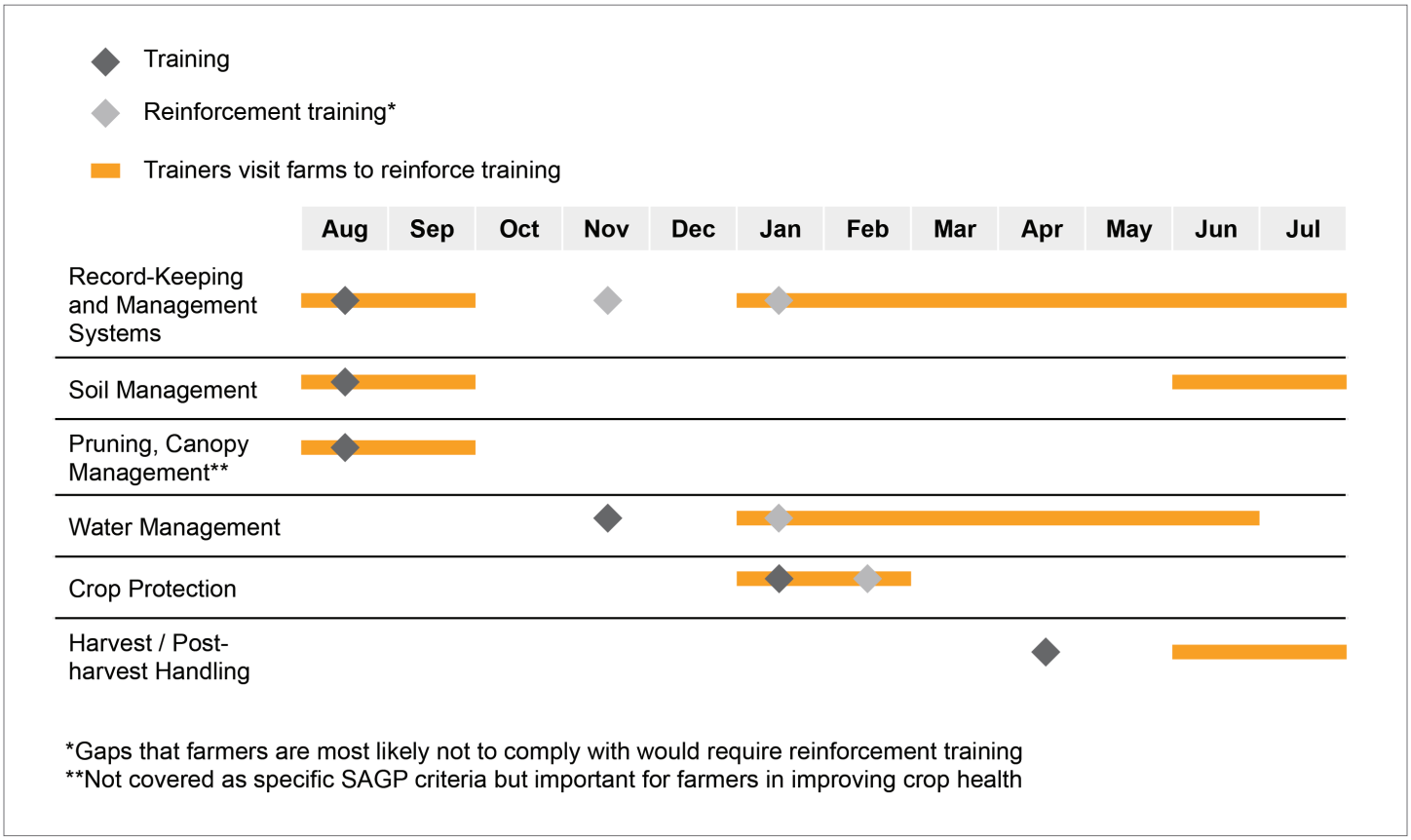
through a hands-on model with a focus on farming as a business.

TechnoServe designed a curriculum tailored to Coca-Cola by focusing on good agronomic practices that facilitate farmers to become SAGP compliant while improving farmer livelihoods and reducing their vulnerability. (See *Exhibit 5* for an overview of training topics.) For example, many farmers in the catchment were over-applying inputs such as fertilizer and water, as well as chemicals for crop protection. Therefore, by understanding and applying SAGPs related to crop protection, water management and soil management, farmers could optimize their use of these inputs, thereby lowering costs without sacrificing output. Additionally, by understanding and applying SAGPs related to harvest and post-harvest management, farmers could realize higher sales by picking fruit at the correct stage of maturity and preventing contami-

Exhibit 5: Summary of Farmer Training Topics

SAGP criteria	Training needed	Expected behavior change	Additional strategies to encourage adoption
Crop protection	• Provide list of illegal agrochemicals • Identification of pests and the correct pesticide dosage based on need • Safety precautions on purchase, transport, storage, disposal • Proper protective gear for chemical applications • IPM principles • Value proposition to smallholders from adopting practices	• Apply only legal pesticides • Apply applicable pesticide to the specific pest and at the correct dosages • Apply and dispose of agrochemicals with minimal negative impact to the environment • Pest management will minimize environmental and human impact	• Partner with Department of Horticulture on IPM • Encourage suppliers to provide smallholders with protective gear and access to proper chemical disposal
Water management	• Methods to improve irrigation, conserve water, manage runoff • Best practices for irrigation system maintenance • Explanation of local environmental/ water laws • Value proposition to smallholders from adopting practices	• Increase adoption of drip irrigation or correct usage • Employ water conservation practices	• Furrow or flood irrigation instead of drip • Broken drips not repaired • Water usage not closely monitored or recorded • Unawareness of local environmental and water laws
Soil management	• Value and purpose of soil analysis; soil analysis interpretation • Proper identification of nutrient deficiency and corrective measures • Correct measurement and application of fertilizer, general Integrated Nutrition Management (INM)	• Implement practices to improve soil health and reduce fertilizer usage	• Under or over application of fertilizer due to absence of soil testing
Harvest / post-harvest handling	• Best practices for food safety and hygiene • Proper identification of mature fruit • Proper harvesting technique, post-harvest handling	• Harvest fruit at correct maturity with proper technique and no contamination	• Lax enforcement by smallholders of proper food safety and hygiene processes • Harvesting/post-harvest handling practices learned informally from family members or neighbors
Record-keeping and management systems	• "Farming as a Business" course to catalyze mindset change for smallholders	• Make appropriate adjustments on expenditures for farm activities based on understanding of key drivers • Smallholders will view themselves as professional farmers	• No written records of practices or procedures • No objectives set

Exhibit 6: Farmer training calendar



nation. As part of the Farming as Business training, farmers also learn to keep farm records to enable effective tracking and planning, protect resources by monitoring water usage, and operate responsibly through compliance with local laws, all of which can help sustain gains over the long term.

The training topics were then organized into a year-long program that includes formal training sessions as well as ongoing reinforcement through additional training and individual visits to farmers' fields *(Exhibit 6).* Training would occur based on a crop-year calendar that follows production needs. For topics with a high likelihood of persistent compliance challenges, such as water management and crop protection, additional reinforcement training was recommended to increase the likelihood of adoption. These practices are less likely to be adopted due to lack of incentives to comply with water management regulations, and generally longstanding practices such as applying blanket levels of fertilizers rather than targeted applications driven by specific requirements.

Second, additional strategies would be implemented to mitigate potential risks to smallholders

and boost farmer adoption of sustainable practices promoted in training. TechnoServe supported Coca-Cola in assessing the risk level to farmers of each SAGP and developed appropriate mitigation strategies for high priority gaps that posed a potential risk to smallholders (*Exhibit 7*). Many of these strategies rely on broader ecosystem strengthening. For example, efficient irrigation might require investment in drip irrigation setup and maintenance. In order to mitigate farmer risk related to this investment, TechnoServe recommended raising smallholder awareness around how to access government subsidies for drip irrigation. Other strategies for mitigating farmer risk and boosting practice adoption included training farmers on low cost approaches to implementing practices (e.g., bucket and spout hand-washing stations to instill hygiene practices) and ensuring smallholders are not penalized if they don't have access to proper agrochemical disposal channels. The majority of priority SAGP gaps identified in India mango pose low potential risk to farmer livelihoods. However, it is important to recognize that even when smallholder farmers adopt sustainable agricultural practices, there are a number of factors affecting crop yields and quality that fall outside of farmers' control, such as climate and rainfall variation. Today, smallholders bear the brunt of risk related to these external factors; therefore, there is a need to more adequately share this risk across the value chain.

Third, traceability to the farm level would be improved by formalizing key roles within the existing supply chain structure using record-keeping and supporting economic incentives. Many mango farmers in the supplier's catchment area already aggregate from neighboring smallholder farms; therefore, Coca-Cola and its supplier decided to enhance the traditional FFS training model by formalizing the role of these farmers as aggregators and building their capacity to keep appropriate records to improve traceability in the supply chain. The formal aggregator farmer could then be incentivized to serve as a peer extension provider, reinforcing adoption of SAGPs by his/her neighboring farmers, through a commission from the supplier that is structured around procurement volumes and appropriate record-keeping. Ultimately, the aggregator could evolve into a small business offering inputs to peer farmers as well as extension and aggregation.

Exhibit 7: Mitigation approaches for high-priority SAGP gaps that pose potential risk to farmer livelihood if adopted

SAGP criteria	Nature/description of risk	Mitigation approach
Efficient irrigation	Smallholders who currently do not use drip irrigation will need to invest money for set up and maintenance	• Raise smallholder awareness on how to access government subsidies for drip irrigation
Proper agrochemical storage, application, disposal	Smallholders may incur additional costs for acquiring proper storage facilities	• Provide training on low cost options for chemical storage that can be made rather than purchased
Proper disposal of agrochemical waste	Smallholders may not have access to proper chemical disposal channels	• Encourage government to provide proper chemical disposal channels • Ensure smallholders are not penalized if they do not have access to proper chemical disposal channels
Hygiene and food safety for harvest/post-harvest	Smallholders may not have appropriate equipment for implementing good hygiene practices	• Provide training on low cost models for hygiene practices that can be made rather than purchased (e.g., bucket and spout handwashing stations)
No bribes or falsified records	The informal nature of smallholder farming and commercialization could be misinterpreted as failure to comply	• Ensure smallholders are not penalized for the informal nature of their operating environment

Exhibit 8: Coca-Cola's Core Metrics and Best Practice Metrics

Core Metrics for all sustainable agriculture programs
PROGRAM CHARACTERISTICS 1. Location* 2. Total program budget 3. Length of project* 4. Average land size under cultivation* 5. Number of male/female farmers participating in the program*
IMPACT METRICS *Sustainable Agriculture* 6. Percentage of volume validated as sustainable *Farmer Livelihoods* 7. Percentage increase in average income from crop cultivation* 8. Percentage increase in crop yield (kg/unit of land)*

Best Practice Metrics**
Crop Protection 1. Percentage of participants utilizing Integrated Pest Management techniques or other natural means to reduce agrochemical use 2. Percentage reduction in yield losses from production to sale
Soil Management 3. Percentage of farmers practicing recommended soil preservation techniques (e.g., crop rotation, cover crops)* 4. Percentage reduction of run-off from fertilizer and pesticide use (where possible)
Water Stewardship 5. Percentage of farmers using conservation practices to optimize water use efficiency (e.g., water recovery systems, drip irrigation/micro sprinklers, land leveling, chiseling of compacted soils, buffers and furrow diking)* 6. Percentage increase in water use efficiency (decrease in total water used in production)
Conservation of Natural Habitats (other metrics dependent on program objectives) 7. Percentage reduction of greenhouse gas emissions (if possible)

**Metrics taken from the Sustainable Food Lab's Recommended Indicators*

***Only metrics related to the training curriculum would be tracked*

Finally, smallholder impact would be monitored and evaluated utilizing Coca-Cola's standard program metrics, and independent audits would be performed to evaluate continuous improvement in SAGP adoption. One component of the model's monitoring and evaluation approach could be requiring the supplier (or other implementing agency) to track impact throughout implementation using Coca-Cola's baseline set of indicators developed in 2016 (*Exhibit 8*). A second component would be engaging a third party to conduct biennial audits of a random sample of smallholder farms involved in the model to assess continuous improvement in SAGP compliance. Monitoring, evaluation and independent audits could also inform refinements to the training curriculum and approach to address outstanding or persistent SAGP gaps.

IMPLEMENTING THE MODEL

The Coca-Cola supplier involved in developing this model agreed to pilot it in 2017.

The supplier intends to pilot the model with 20 percent of its pulp supply sold to Coca-Cola in this first year, with the goal of reaching 100 percent SAGP certification of its supply to Coca-Cola by 2020.

KEY TAKEAWAYS

Beyond this initial pilot, Coca-Cola aims to scale the model to other India mango suppliers. Coca-Cola plans to identify other India mango suppliers willing to apply the model in their supply chain. Alternatively, Coca-Cola could bring together multiple suppliers operating in a shared catchment area with an interest in supporting sustainability in their supply chain. In this alternative approach, Coca-Cola, suppliers and other interested parties could pool their resources to collectively apply the model across all smallholders within the entire shared catchment area. This strategy would efficiently promote adoption of SAGPs or equivalent third-party standards across the entire sourcing region.

Outside of India mango, the model can be used as a foundation and tailored to the unique context of Coca-Cola's other priority smallholder crops and geographies. Coca-Cola has identified other geographies and crops in which it aims to promote sustainable practices in smallholder agriculture in line with its sustainable sourcing commitments. After testing and refining the model in India mango, Coca-Cola hopes to replicate the model with suppliers in these other geographies and crops, using a similar process of value chain assessment and gap identification to appropriately tailor the model to each local context.

Smallholder farmers play an important role in the sustainable sourcing commitments of many multinational companies such as Coca-Cola; however, achieving sustainability at scale in smallholder-dominated supply chains requires a new approach. Because smallholder supply chains are highly fragmented and non-transparent, many traditional approaches to ensuring sustainable sourcing at scale have limited efficacy. Even companies with significant size and footprint, such as Coca-Cola, have limited buyer power in smallholder supply chains. This dynamic is particularly acute in crops such as mango, where the presence of a vibrant fresh market constrains processor influence in the supply chain. Certification schemes also have their limits at scale, as they rely on the existence of certain infrastructure, such as farmer co-operatives, to provide traceability to the farm level. In most cases this infrastructure is present within only a small portion of smallholder supply chains.

A catchment area approach is a promising path forward in the search for a scalable solution to sustainability in smallholder supply chains. Under a catchment area approach, a coalition of multiple suppliers sourcing from the same geographic area could collaborate in systematically training all smallholders in the sourcing region over time on an agreed upon set of sustainable practices and criteria. An independent auditor would then periodically evaluate the practices of a representative random sample of farmers in the catchment area to assess continuous improvement against the sustainability criteria. By training all farmers in the catchment area and evaluating adoption among a representative sample, this model eliminates the need to create additional structures to provide traceability. India mango could be a strong test ground for this type of an approach.

Companies must recognize and take an active role in mitigating risks that smallholders could face in adopting sustainable sourcing standards. Smallholder farmers face tremendous risk. Any practices that smallholders are encouraged to adopt should promote environmental and social sustainability while also improving farmer livelihoods and resilience. Therefore, in many cases, only a subset of a company's full list of sustainability criteria can be appropriately applied to smallholder farmers. It is also important to bear in mind that smallholders in commercial supply chains are typically required to meet stringent quality requirements, and that factors outside of farmers' control (such as changing weather and rainfall patterns) can inhibit their ability to meet these standards, even when employing sustainable agricultural practices. Therefore, the long term sustainability of commercial supply chains reliant on smallholders will also depend on the continued development of approaches to mitigate or distribute the risk posed to smallholders by external factors such as climate change.

TECHNOSERVE
BUSINESS SOLUTIONS TO POVERTY

Kellogg's®

TechnoServe Initiative for Inclusive Agricultural Business Models

The Kellogg Company: Bolstering Emerging Markets Growth and Improving Livelihoods through Sustainable Local Sourcing

EXECUTIVE SUMMARY

Multinational companies have made bold sustainability commitments with the potential to effect substantial poverty-reduction. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in designing win-win approaches to meet their sustainability commitments related to smallholder farmers. This involved developing inclusive and sustainable business models that both improve farmer livelihoods and reduce their vulnerability to climate change, while creating commercial value for the company. This case study documents the experience of one of these four companies, Kellogg Company, outlining the company's specific opportunity, the model designed to capture this opportunity, and takeaways for consideration by other industry players.

Sustainable local sourcing in emerging markets supports not only Kellogg's global sustainability commitments, but also its growth in emerging markets. Kellogg saw an opportunity for investment in local smallholder farmers that could both improve farmer livelihoods and climate resilience, while also bolstering growth in its emerging market business through multiple channels, including: 1) securing access to reliable, cost-effective, high-quality commodities that meet Kellogg specifications; 2) strengthening government relations and license to operate; 3) improving consumer brand perception; and 4) advancing the company's global sustainability commitments.

Using Egypt as a platform, Kellogg designed a partnership-driven approach to strengthening the sustainability of its local smallholder supply chains. To do so, Kellogg adopted TechnoServe's five-step approach to enhancing the commercial value and social impact of local sourcing in emerging markets. After defining concrete commercial and social objectives and analyzing priority supply chains in Egypt, TechnoServe supported Kellogg in designing tailored models to strengthen its local rice and date supply chains in partnership with other ecosystem actors. The rice supply chain model focuses on training smallholder farmers on agronomic practices that can increase yields and reduce water usage. It also builds farmer-association capacity to acquire storage facilities and manage direct contracts with mills supplying Kellogg in order to reduce price volatility across the supply chain. The date supply chain model centers on improving quality at the farm and primary processing levels and developing direct sourcing relationships in order to expand Kellogg's impact on farmer livelihoods and climate resilience, while reducing supply chain risk. Implementation of the rice and date models is projected to increase smallholder farmer incomes by 100 percent and 40 percent, respectively, while securing a 15 percent and 65 percent return on investment to Kellogg in addition to less quantifiable reputational benefits. Kellogg plans to pilot both the rice and date models and is in the process of formalizing the partnerships required to do so.

Going forward, Kellogg aims to replicate this approach across other emerging markets to continue advancing its sustainability commitments. Kellogg plans to utilize the Egypt case internally as a proof point for how its sustainability objectives can be achieved in practice while delivering both operational and reputational commercial value to the company. It will also use a how-to guide and toolkit developed by TechnoServe to empower other parts of the company to take a leadership role in advancing Kellogg's sustainability commitments through local sourcing in emerging markets.

BACKGROUND

In recent years, an increasing number of multinational companies have made bold sustainability commitments with the potential to effect substantial poverty reduction. In recognition of this great potential, the Ford Foundation and TechnoServe have partnered to support multinational companies in achieving their sustainability commitments related to smallholder farmers. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in developing inclusive and sustainable business models that could improve farmer livelihoods and reduce their vulnerability to climate change, while creating commercial value for the company. This case study documents the experience of one of these four companies, Kellogg Company, outlining the company's specific opportunity, the model designed to capture this opportunity and takeaways for consideration by other industry players.

Building upon its long tradition of promoting social and environmental sustainability, Kellogg has committed to responsibly sourcing its top 10 ingredients and materials by 2020. In line with this objective, Kellogg has committed to supporting the livelihoods of 500,000 farmers through partnerships, research and training on climate-smart agriculture, which helps farmers adapt to climate change while assuring productivity of their yields and reducing greenhouse gas emissions from their agricultural practices. This commitment includes supporting 15,000 smallholder farmers, specifically to improve their livelihoods and climate resiliency — a goal the company has achieved four years ahead of schedule.

Field waiting to be cleared to plant rice.

KELLOGG'S OPPORTUNITY

BOLSTERING EMERGING MARKETS GROWTH AND IMPROVING LIVELIHOODS THROUGH SUSTAINABLE LOCAL SOURCING

Sustainable local sourcing supports not only Kellogg's sustainability commitments, but also its growth in emerging markets. Kellogg has set an ambitious business goal of doubling its emerging market sales, including tripling its business in the Middle East and North Africa. The company took one of its first steps toward this goal in 2015 by purchasing two Egyptian food companies, Bisco Misr and Mass Food Group[1]. In light of its bold emerging markets growth strategy, Kellogg saw an opportunity for investment in local smallholder farmers that could improve both farmer livelihoods and climate resilience, while also driving value for the company's emerging markets business across multiple dimensions, including:

- **Securing access to reliable, cost-effective, high-quality commodities that meet Kellogg specifications.** As Kellogg's emerging markets business grows, its volume requirements for locally sourced ingredients will increase. Investing in improving the productivity and climate resilience of smallholder farmers in emerging markets and supporting them to meet Kellogg's specifications increases the volume of local ingredients available to Kellogg. Improved quality of local ingredients also boosts conversion rates from raw materials to finished goods, reducing waste and procurement costs.
- **Strengthening government relations and license to operate.** Investing in local smallholder farmers supports government agricultural agendas in emerging markets and reinforces Kellogg's commitment to the growth and development of the countries in which it operates.
- **Improving consumer brand perception.** Investing in smallholder farmers in emerging markets provides a platform for greater supply chain transparency, enabling Kellogg to demonstrate its corporate responsibility to consumers and other stakeholders that affect the company's local and global reputation.
- **Advancing the company's global sustainability commitments.** Investing in smallholder farmers in emerging markets aligns directly with Kellogg's responsible sourcing commitment to build programs that help small-scale producers improve their livelihoods and climate resilience.

Simple changes to harvesting techniques — such as using a basket to collect dates instead of dropping them on the ground — can reduce post-harvest loss and increased farmer income.

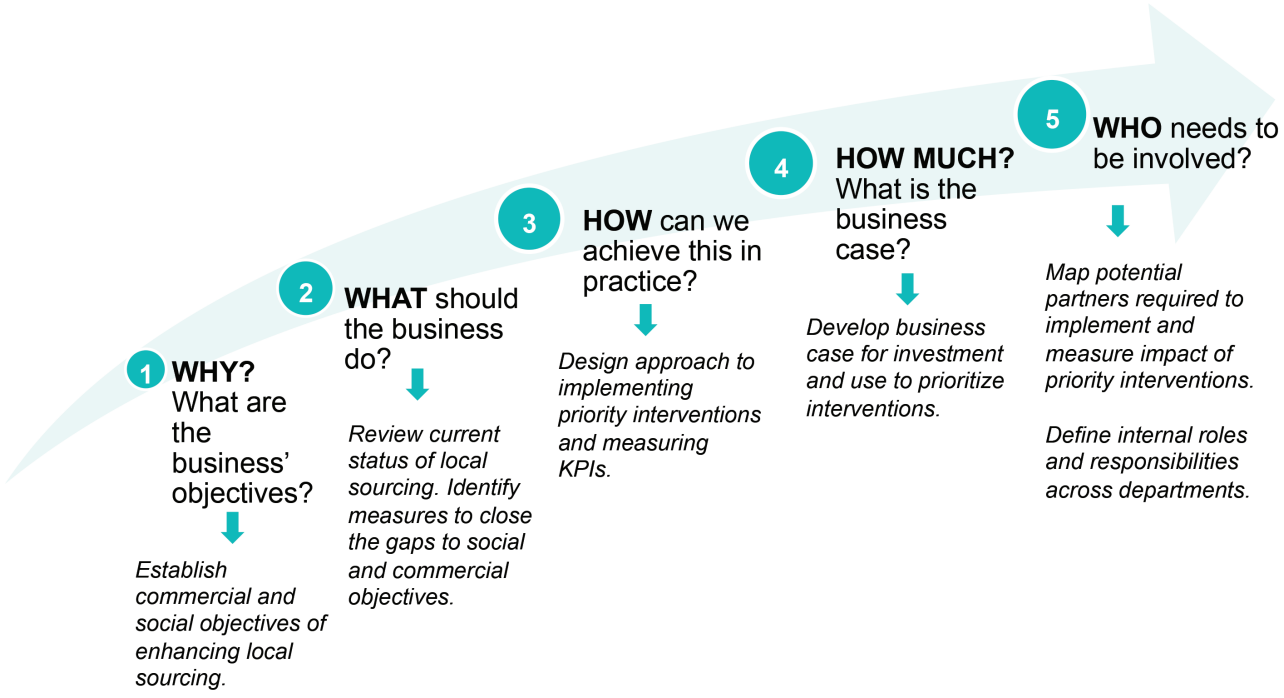
1. *February 2016 Kelloggs'* Investor Relations Report*: http://investor.kelloggs.com/~/media/Files/K/Kellogg-IR/reports-and-presentations/2016/2016-cagny-presentation.pdf*

CAPTURING THE OPPORTUNITY

STRENGTHENING LOCAL SMALLHOLDER SUPPLY CHAINS THROUGH PARTNERSHIPS

Using Egypt as a platform, Kellogg sought to design a partnership-driven approach to strengthening the sustainability of its local smallholder supply chains. To do so, Kellogg adopted TechnoServe's five-step approach to enhancing the commercial value and social impact of local sourcing in emerging markets. Kellogg established a multi-department steering committee to oversee the project, including members from its sustainability team, as well as Leadership and Procurement representatives from its local subsidiary, Mass Food Group.

Exhibit 1: TechnoServe's 5-step approach for enhancing the commercial and social value of local sourcing



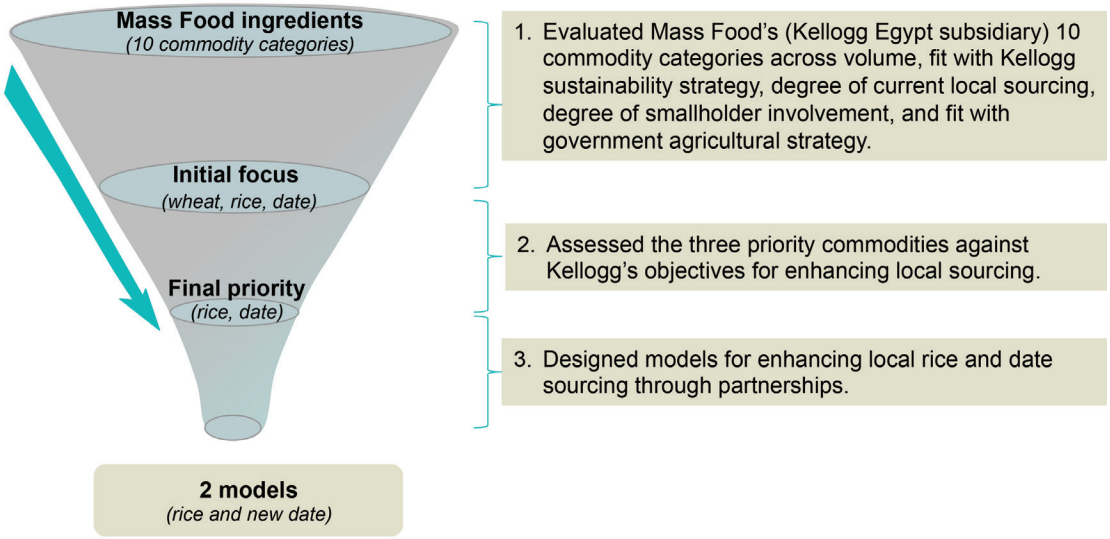
WHY ENHANCE LOCAL SOURCING?

Kellogg's first step was to establish the commercial and social objectives of strengthening local sourcing in Egypt. Kellogg's primary ingoing commercial objective was to strengthen the company's local license to operate and support growth in the market. In keeping with its sustainability commitments, Kellogg's social objectives were to improve smallholder livelihoods and climate resilience. Aligning internal stakeholders — including the sustainability, local and regional business unit leadership, procurement, and government relations teams — around these objectives helped to guide subsequent analysis and provide direction for vetting different solutions.

WHAT SHOULD THE BUSINESS DO TO ENHANCE LOCAL SOURCING?

TechnoServe supported Kellogg in short-listing a set of focus commodities for in-depth analysis of opportunities to enhance local sourcing. In partnership with ADCI/VOCA's Egypt team, TechnoServe evaluated each commodity sourced by the company's Egyptian subsidiary, Mass Food Group, against a set of prioritization criteria, including: procurement volumes, fit with Kellogg's sustainability strategy, degree of current local sourcing, degree of smallholder involvement in local crop production, and alignment with the Egyptian government's agriculture strategy. Wheat, rice and dates were initially short-listed as a result of this prioritization

Exhibit 2: Focus commodity prioritization process



exercise. While wheat is a priority crop for Kellogg's sustainability agenda, the focus commodities were ultimately narrowed to rice and dates. This was because Kellogg's opportunities in local wheat sourcing would be severely limited by the level of government intervention in the market, which included setting prices and mandating that all locally grown wheat be used for domestic bread production, rather than for other processed consumer goods.

TechnoServe then mapped each priority supply chain through field research in order to identify inefficiencies and potential solutions. TechnoServe and ACDI/VOCA conducted site visits and interviewed key stakeholders in Egypt, including: farmers, Kellogg's suppliers (e.g. mills and primary processors), agricultural experts, government agencies, and Mass Food's Leadership and Procurement teams. Mapping the value chains brought to light important considerations regarding general feasibility and key components of effective models for enhancing local sourcing.

Low farm-gate prices, inefficient water use, and heavy reliance on middlemen in the rice supply chain are sustainability issues for both smallholder farmers and Kellogg. Kellogg's existing rice supply chain in Egypt — including procurement for Mass Food and Kellogg's European operations — reaches an estimated 3,000 smallholder farmers. Egyptian rice smallholders lack access to secure storage and cash reserves. As a result, they typically resort to selling their full crop to traders during the harvest season, when prices are low, instead of waiting for higher prices post-harvest. Prices can increase by between 20 and 30 percent post-harvest, and traders physically hold supply until they can secure their preferred price from millers. Additionally, Egyptian rice smallholders rely on water-intensive flood irrigation rather than more efficient irrigation practices and achieve yields an estimated 15 percent below their practical potential.

These challenges can be addressed by building rice farmers' capacity to increase their incomes and optimize water use, while developing more direct linkages between Kellogg's millers and farmers. Providing farmers with training and access to technology for water use optimization, yield improvement and post-harvest handling can enable them to sustainably increase incomes. Additional shared value could be created by simultaneously building and/or strengthening the ability of farmers' associations to aggregate, sort and store rice, while establishing contracts directly with Kellogg millers as anchor buyers. Finally, farmers' associations could be equipped to facilitate additional training and technology adoption among their members.

Exhibit 3: Overview of rice supply chain mapping and assessment

Mass Food Suppy Chain Overview	 **Smallholder farmers** grow rice and accept a fixed price from traders for their entire harvest. Traders take possession of the entire crop at harvest and pay farmers in installments throughout the year.	 **Traders** purchase rice from farmers and store it in their warehouses. They set the prices paid to farmers and those paid by millers, which depend on season, supply, demand and export regulations.	 **Millers** purchase rice from traders on a monthly basis throughout the year. Millers grade and grind rice into rice flour per customer specifications.	**Mass Food** receives rice from two millers with whom they have strong relationships.
Challenge	**Smallholder farmers** lack access to secure storage and cash reserves. They sell their crop during the harvest, when prices are low, instead of waiting for higher prices post-harvest. They also rely on water-intensive flood irrigation and have sub-optimal yields.	**Traders** physically hold the rice supply, allowing them to control price. Traders charge millers $1.1 per MT over the market price, increasing prices 20 to 30 percent over the farm gate price post-harvest.	**Millers** pay the prevailing market price at time of purchase, which can increase 20 to 30 percent post-harvest.	**Mass Food's** price for rice flour reflects higher procurement costs incurred by millers due to their reliance on traders.
Potential Kellogg Program Activities	**Provide farmers** with training and access to technology for water use optimization, yield improvement, and post-harvest storage so that they can capture higher prices by spreading sales out throughout the year.	Provide capacity building to **farmers associations** to aggregate, sort and store rice; to establish contracts directly with MF millers; and to facilitate training and technology adoption among members.	Work with Mass Food **millers** to serve as anchor buyers for farmers associations. Both of Mass Food's primary mills expressed interest in sourcing directly from farmers associations.	

Reliance on a single local date supplier limits the reach of Kellogg's impact and creates security of supply risks. Mass Food's existing local date supply chain reaches approximately 80 smallholder farmers in Giza. These farmers receive inputs and extension support from a vertically integrated processor that operates its own farm and tops up in-house production by sourcing from surrounding smallholder farmers. This processor is currently the only local source of dates meeting Kellogg's specifications and as a result has historically had very strong supplier power. In the past, prices from this supplier had been raised so high that one of Kellogg's Egyptian subsidiaries had to resort to importing dates rather than sourcing them locally.

Developing an additional source of high-quality and reliable local date supply could expand Kellogg's impact while securing local supply. Kellogg could develop a second local date source in the Siwa Oasis by training smallholder date farmers on practices that would increase yields and quality

Date processing facilities offer employment opportunities to both young women and young men.

while reducing environmental impact. Additionally, existing Siwa-based primary date processors would need training to meet Kellogg's quality specifications so that they could begin supplying the company. Finally, Kellogg would need to develop direct contracts with Siwa-based primary processors and support local date farmers' associations in developing and fulfilling contracts with these primary processors.

HOW CAN WE ACHIEVE THIS IN PRACTICE?

TechnoServe, with support from ACDI/VOCA, designed tailored models to enhance local date and rice sourcing through partnerships with other ecosystem actors that address the unique challenges in each supply chain. Kellogg sought to design models that leveraged the strengths and expertise of external partners, particularly government agencies. Coordinating closely with these agencies would be critical in strengthening the broader ecosystem within which local smallholder farmers operate, rather than more narrowly limiting the benefits to Kellogg's specific supply chain.

The rice supply chain model centers on farmer training, storage and direct contracts between farmer organizations in the Nile Delta and mills supplying Kellogg. An implementing partner organization would work with researchers from the Egyptian Ministry of Agriculture's Rice Research Training Center to develop and deliver an agronomic training program for farmers in the Nile Delta, enabling farmers to improve yields, manage costs and reduce environmental impact. This program would include topics such as: reducing water use, optimizing the use of other inputs, and proper waste disposal. Given low existing levels of organization among smallholder rice farmers in the region, the implementing agency would also support

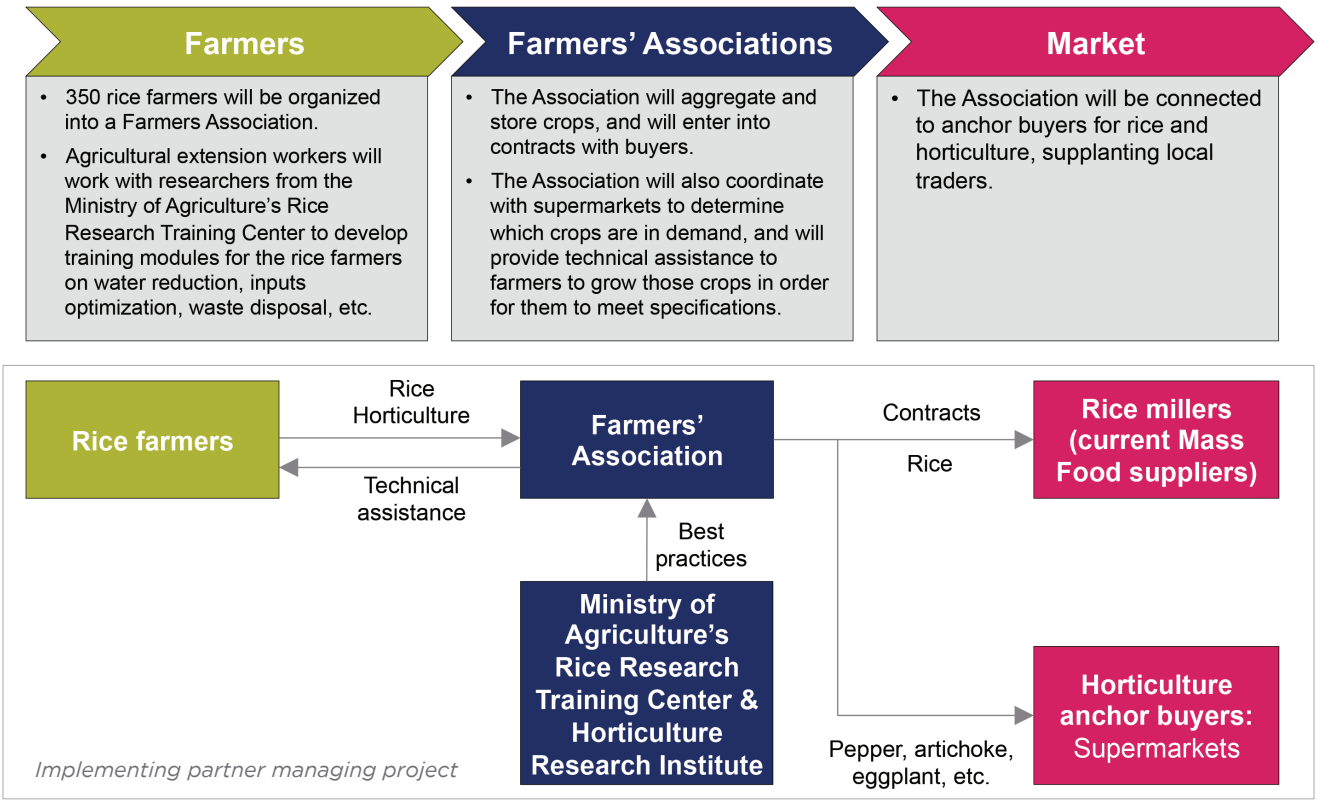
Exhibit 4: Overview of date supply chain mapping and assessment

Mass Food Suppy Chain Overview	 In Giza, **80 smallholder farmers** have informal agreements to sell their date crop to Mass Food's local processor, who provides pre-harvest partial payment and ad hoc farmer training. Other smallholders are sourced from as required.	 The **single local processor** aggregates dates from a vertically-integrated farm and from 80 nearby small farmers. The dates are washed, dried and ground into paste. The company's procurement agents visit its smallholder farms daily during the harvest season to advise on post-harvest handling.	**Mass Food** receives date paste from the local processor.
Challenge	**Smallholder farmers** rely on local market inputs retailers or the vertically-integrated processor for information regarding agricultural practices.	The **single local processor is providing valuable support to smallholders, but cannot expand the number of farmers it sources from without additional customers. As the sole supplier to Mass Food processor, it has monopoly power over pricing.**	**Mass Food** mostly sources date paste for a single public buyer.
Potential Kellogg Program Activities	Develop a secondary date source by training 200 **farmers** on pruning, inputs optimization, post-harvest handling and pest management. There is the potential for a climate-smart agriculture element by using palm waste as cooking fuel or furniture.	Provide **processor** capacity building to reliably meet Mass Food and Bisco Misr product specifications and volumes.	Negotiate a contract between **Mass Food / Bisco Misr** and new processors to diversify the date paste supplier base and reduce prices by introducing competition.

the development of farmers' associations that could aggregate member production and manage supply by acquiring storage facilities. Additionally, Kellogg's implementing partner would support farmers' associations in entering into and fulfilling direct contracts with anchor commercial buyers. Bolting on support for high-value horticultural crops that could also be produced in rice-growing regions — such as pepper, artichoke and eggplant — would further improve farmer livelihoods and climate resilience while bolstering their loyalty to the association. Therefore, the model also includes farmer training on high value horticultural crops between rice seasons and farmer association support to secure formal purchase contracts with local supermarkets. Implementation of this model is predicted to double farmer incomes.

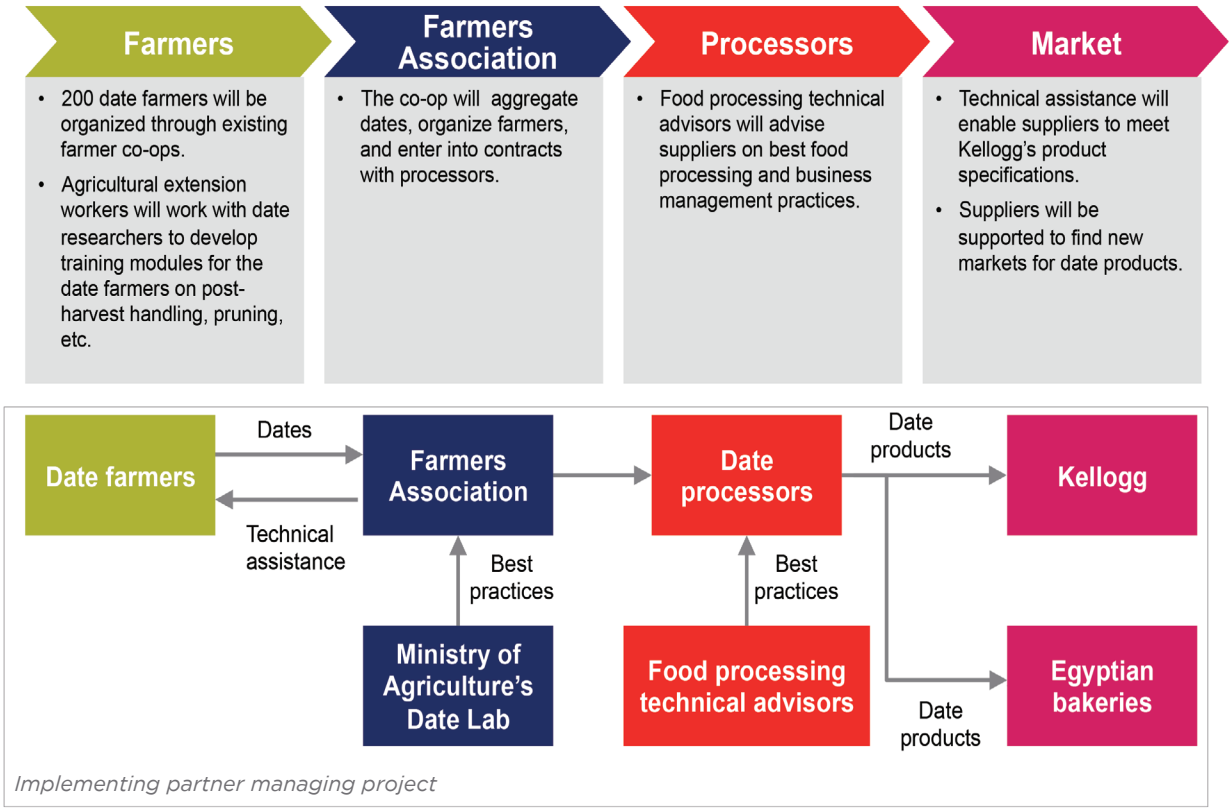
The date model focuses on increasing quality at the farm and primary processing levels in the Siwa Oasis. An implementing partner organization would work with the Egyptian Ministry of Agriculture's Date Lab to develop and deliver an agronomic training program to existing date farm-

Exhibit 5: Model for enhancing local rice sourcing



ers in the Siwa Oasis. This training would focus on practices that could improve quality levels, thereby enabling farmers to secure higher prices while meeting Kellogg's quality specifications. Key training topics would include pruning, input optimization, post-harvest handling, pest management and proper palm waste disposal. Kellogg's implementing partner would also train existing farmer associations in aggregation and off-taker contracts. To address processor capacity, Kellogg's partner would work with experts from the Ministry of Trade and Industry's Food Technology Center to train two

Exhibit 6: Model for enhancing local date sourcing

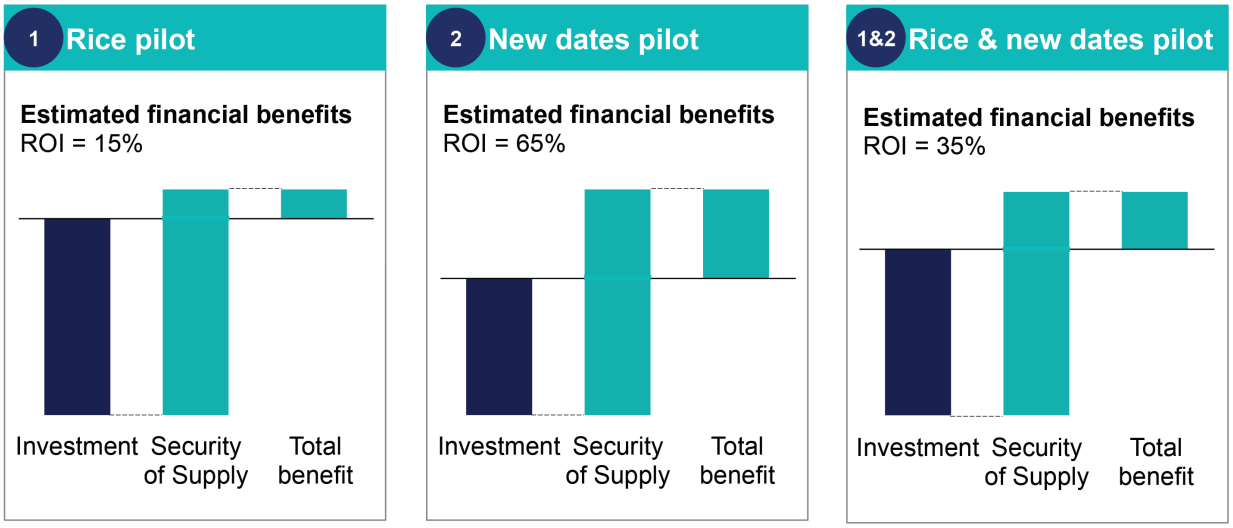


or three existing date processors in the Siwa Oasis on best food processing and business management practices. Implementation of this model is predicted to increase smallholder date farmer income by approximately 40 percent.

HOW MUCH? THE BUSINESS CASE FOR ENHANCING LOCAL SOURCING

Kellogg's Sustainability team built buy-in from relevant internal stakeholders by sharing the business case for operationalizing the models, including a projected return on investment. TechnoServe developed a business case articulating the four commercial value drivers explained above, including operational sources of value (securing access to reliable, cost-effective, high-quality commodities), as well as reputational sources of value (strengthening government relations and license to operate, improving consumer brand perception, and advancing the company's global sustainability commitments). TechnoServe then calculated a return on Kellogg's investment (ROI) by estimating the cost of piloting the rice and date models and quantifying the operational value it would generate for the company. The operational value to the company would be generated by securing access to reliable, cost-effective and high-quality local supply, and was estimated as the difference between the cost of expected procurement volumes over five years under existing conditions and the enhanced sourcing model. A positive return on Kellogg's investment was expected in each model, as demonstrated in the exhibit below. While the date model was expected to produce a higher quantifiable commercial ROI, the rice model anticipated a larger effect on farmer incomes. Both models were expected to deliver reputational value to Kellogg across government relations, license to operate, brand perception and sustainability leadership, as they were aligned with both the country's agricultural priorities and with Kellogg's sustainability commitments. Kellogg ultimately decided to implement both models.

Exhibit 7: Return on investment of sustainable smallholder sourcing models



Note: ROI calculations assume two years of fixed investment, and give five years of security of supply value

WHO NEEDS TO BE INVOLVED?

Kellogg aimed to take a partner-based ecosystem approach to enhancing local sourcing from the outset. Through its in-country research, TechnoServe identified a range of partners to support the implementation of both models, including potential co-funders (public donors, private foundations, and other companies), implementing partner organizations (including both local and international organizations), government agencies, and agricultural advisors. TechnoServe conducted an initial assessment of potential partners, provided Kellogg with specific partner recommendations and facilitated initial conversations between the two parties. Kellogg is currently moving forward with ACDI/VOCA[2] as its implementing partner and is pursuing co-funding from a European embassy in Cairo.

TechnoServe also supported Kellogg in defining internal roles and responsibilities across the com-

Many regions in Egypt have two growing seasons. After this farmer harvested his rice, he planted clover for his livestock.

2. While TechnoServe does implement models like the ones designed in this project in a number of emerging markets, it does not have permanent operations in Egypt and therefore could not serve as an implementing partner for Kellogg in Egypt.

pany. This included internal roles in moving the pilot in Egypt forward, as well as roles that would be required to replicate the approach in other emerging markets. Key functions included Kellogg's local and regional business units, sustainability, procurement, and government relations, as well as food research, quality and nutrition technology. Successful implementation and strong positive results from the Egypt pilot will motivate full adoption of these roles and replication of the approach in other geographies.

Moving forward, Kellogg aims to apply the approach used in Egypt to design new business models for sustainable local sourcing in other emerging markets. Based on the Egypt model, TechnoServe developed a case study and a how-to guide for internal training within Kellogg, complete with the tools used throughout the application of the five-step process, such as the commodity prioritization framework, ingredients databases, value chain overview, interview guides and return on investment model. The internal case study will be used by Kellogg's sustainability team as a proof point to raise awareness among internal stakeholders around the benefits of enhanced local sourcing models and to demonstrate how these can be achieved. The how-to guide is designed to be used by any department (e.g., sustainability, emerging market business units, procurement) to develop and implement models for strengthening local sourcing in emerging markets.

Exhibit 8: Internal roles for local sourcing enhancement initiatives

Role	Suggested Members	Responsibilities
Project sponsor	• Business unit head	Approve pilot and partners, authorize funding
Project steering committee	• Sponsoring department member • Country head • Chief sustainability officer	Make strategic decisions to guide research and pilot design
Project working group	• Sponsoring group member • Local procurement	Provie feedback on research and pilot design
Sustainability representative	• Sustainability manager	Provide guidance on sustainable sourcing
Local procurement representative	• Senior procurement manager	Provide procurement data, make introductions to suppliers
Regional procurement representative	• Senior procurement manager	Provide procurement data
Regional leadership	• Regional vice president	Set strategic goals for region, authorize funding
Marketing/Communications Representative	• Marketing manager • Regional PR	Develop marketing messaging, external communications
Government relations representative	• Regional government relations manager	Introduce project team to relevant public stakeholders
Research, quality, nutrition and technology representative	• Researchers for priority crop	Share best practices for farmers and processors

KEY TAKEAWAYS

Irrigation pumps carry water from the Nile River to flood rice fields, Improved water management can reduce the amount of water used for agriculture.

Local sourcing in emerging markets can serve as a platform for broadening ownership of a company's sustainability agenda across the organization. Kellogg's sustainability team engaged various functions across the company (Middle East leadership, Egypt local operations, procurement, government relations) throughout the process of determining how to strengthen local sourcing in Egypt, from defining initial commercial and social objectives and prioritizing focus areas, to designing the models, articulating commercial value drivers, quantifying the return on investment to the company, and determining what to take forward. Additionally, having a concrete example of how a company's sustainability objectives can be achieved in practice while delivering both operational and reputational commercial value can serve as an effective proof point for internal stakeholders. Using the Egypt case study as an example, Kellogg's Sustainability team clearly articulated the value proposition of sustainable local sourcing in emerging markets to a variety of internal functions. Finally, developing a how-to guide and toolkit for designing and implementing sustainable local sourcing can also empower other parts of the company to take a leadership role in advancing the company's sustainability commitments.

Building more direct relationships between multinational companies and smallholder farmers is

3. Abraham online, "egypt's El-Sisi ratifies two agricultural and health insurance laws," 18 Sept 2014; Al-Monitor, "Egypt to cultivate digital data from the agricultural sector," 5 July 2016.

often a key driver of social impact and commercial value in local sourcing models; while this can enable farmers to secure higher prices, it also exposes them to new risks. Smallholder farmers in commercial supply chains are typically required to meet stringent quality requirements; however, smallholders are extremely vulnerable to factors outside of their control. For example, changing weather or rainfall patterns can inhibit their ability to meet quality standards even when employing good agricultural practices. Therefore, the long-term sustainability of commercial supply chains reliant on smallholder farmers will also depend on the continued development and adoption of approaches to mitigate and distribute the risk posed to smallholders by external factors, such as climate change. Buyers subsidizing weather-index-based crop insurance is one example of how farmer risks can be mitigated and more equally distributed along the supply chain. In the Egyptian context specifically, the government's plans to pilot a smart ID card for collecting information from, and distributing subsidies to, farmers could eventually also serve as a channel for crop insurance, particularly in light of the government's 2014 mandate to create an agricultural insurance fund for damage caused by natural disasters.[3]

Sustainable local sourcing in emerging markets often requires high-touch models, reinforcing the importance of external partnerships and ecosystem approaches. As multinational companies seek to achieve sustainability goals that create value beyond their immediate supply chain or customer base, they are increasingly recognizing the need to work with a wide spectrum of partners — from governments to NGOs, research institutes, peers and donors — to improve the broader ecosystems that surround their global operations. In particular, securing co-investment from public entities or private foundations is a growing priority for companies. However, companies sometimes design sustainability initiatives without a deep understanding of the priorities of relevant government actors or other potential co-funders. Kellogg recognized the importance of this alignment from the beginning and worked up front to understand the priorities of the Egyptian Ministry of Agriculture and key potential donors, and then designing an approach to strengthening its local sourcing that would align with those priorities. For example, by incorporating a horticulture component into the rice model, Kellogg would not only catalyze greater improvements in farmer livelihoods and climate resilience, but would also ensure alignment with the funding priorities of a European embassy in Cairo that had expressed initial interest in the project. As a result, the embassy has invited Kellogg to submit a proposal for pilot co-funding.

TECHNOSERVE
BUSINESS SOLUTIONS TO POVERTY

ABInBev

TechnoServe Initiative for Inclusive Agricultural Business Models

SABMiller/AB InBev: Enhancing the Commercial and Social Value of Local Sourcing in Africa

EXECUTIVE SUMMARY

This case study documents TechnoServe's experience in identifying ways of enhancing commercial and social value through local sourcing in Africa for SABMiller and AB InBev. It is one of four projects supported by TechnoServe, through a grant from the Ford Foundation and matching company investment, to help multinational corporations achieve their sustainability commitments.

TechnoServe initiated this project with SABMiller PLC in May 2016 as the company saw an opportunity to review and strengthen its local supply chains in Africa to create more value for the business and for smallholders. Sourcing locally from smallholder farmers was a critical component of SABMiller Africa's business strategy. Many of SABMiller's subsidiaries in Africa not only procured from domestic markets, but had developed new brands and brewing processes to adapt to locally available crops grown by smallholders. Nile Breweries Limited (NBL) in Uganda and Cervejas de Mocambique (CDM) in Mozambique are two such examples, working with local sorghum and cassava smallholders to create local brands "Eagle" and "Impala." The development of these new, affordable beers was made possible by favorable excise rates that resulted in significant sales growth for the businesses, secure markets, and increased incomes for smallholder farmers, while increasing overall tax revenues for the local government. On October 10, 2016, the business combination of SABMiller PLC with Anheuser-Busch InBev was completed. SABMiller's subsidiaries, including the businesses which participated in this project (Nile Breweries and Cervejas de Mocambique) are now part of AB InBev.

Nile Breweries and Cervejas de Mocambique were already generating significant value through local smallholder sourcing, but it came with its challenges. Smallholder yields are often significantly lower than attainable levels, and achieving quality standards is a challenge. Smallholder farmers and supply chain actors lack information and resources compared to commercial farms in developed markets. Finally, the operating environment adds to these challenges; for example, with weak availability of agribusiness services, poor infrastructure and lack of basic public services such as health and education in farming communities. TechnoServe helped these businesses apply a five-step process to review the state of local sourcing and build a commercial case for investment.

In Uganda, NBL's well-established sorghum and barley supply chains still showed potential to improve productivity and professionalism. NBL and TechnoServe drew up a comprehensive intervention model to up-skill actors at every level of the local value chain and improve communications and governance. Underpinning the intervention model is an automated data collection system to facilitate improved supply chain management, highlight areas of risk, and communicate social and commercial impact.

In Mozambique, CDM's cassava and maize supply chains highlighted opportunities for the business to improve productivity and increase supply chain transparency. CDM and TechnoServe designed initiatives to improve smallholder yields and incomes by working through its suppliers. CDM also found ways to reduce smallholder risk in cassava, where it is the only commercial buyer, through improved communications and the development of alternative markets (creating opportunities for both smallholders and its own production facility).

This case highlights a number of important learnings for other companies sourcing locally from smallholders:

- There is significant commercial and social value to be generated by integrating local smallholder sourcing into a company's long-term business strategy;
- Once established, local sourcing can be further enhanced to generate additional value to both smallholders and the commercial business;
- Integrating local smallholder sourcing as a core part of emerging market business strategy requires strong leadership and cross-functional engagement;
- Developing a concrete business case for local smallholder sourcing initiatives helps to bring in internal stakeholders and facilitate required investments;
- Systematic data collection from local supply chains is key to enhancing value;
- Initiatives to improve smallholder livelihoods should aim to reduce farmers' risk, as well as increase their incomes; and
- Improvements to local supply chains can be made by corporations, even when they do not source directly from smallholders by adopting an "ecosystem approach."

BACKGROUND

In recent years, an increasing number of multinational companies have made bold sustainability commitments with the potential to effect substantial poverty reduction. In recognition of this great potential, the Ford Foundation and TechnoServe have partnered to support multinational companies in achieving their sustainability commitments related to smallholder farmers. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in developing inclusive and sustainable business models that could improve farmer livelihoods and reduce their vulnerability, while creating commercial value for the company. The report discusses the experience of one of these four companies, SABMiller, including the company's specific opportunity, the model designed to capture this opportunity, and key takeaways for consideration by other industry players.

SABMiller PLC was a leading global brewer with around 70,000 employees across more than 80 countries, including a very strong presence in Africa. On October 10, 2016, SABMiller combined with AB InBev, the world's leading global brewer with over 400 brands and 200,000 employees. SABMiller's subsidiaries, including the businesses which participated in this project (Nile Breweries and Cervejas de Mocambique) are now part of AB InBev.

Given the local nature of brewing businesses, sourcing locally was central to the company's model in Africa. The company sourced brewing crops such as barley, sorghum, cassava and maize from smallholder farmers. Its approach to local sourcing in Africa had three key objectives: establish sustainable local supply chains, improve livelihoods for smallholder farmers in the supply chain, and help drive local economic growth.

SABMiller's local sourcing strategy was based on a "win-win-win" model that created value for the commercial business, smallholder farmers and local stakeholders. As a result:

- **Local business** can source quality local raw materials and has also benefited from favorable

excise rates recognizing its investment in the local economy. This helps drive growth through the creation of new, affordable beer brands for new customer segments;

- **Smallholder farmers** can access a secure market for their crops and benefit from support to enhance productivity and improve their livelihoods. This creates a broader positive impact on the development of local rural communities;
- **Local stakeholders**, such as the government, benefit from greater economic development in agricultural communities and increased overall tax revenues (as new, affordable beer brands made with local materials can displace consumption of untaxed, illicit alcohols).

Sourcing from smallholders in Africa presents numerous challenges compared with sourcing in developed markets. This project focused on analyzing these challenges and finding ways to optimize SABMiller's supply chains to realize the full potential of the local sourcing program. AB InBev has a similar approach to farmer training and development and will draw on the insights from this project to inform its future farmer development activities in Africa.

Cassava farmers in a rural area north of Maputo, Mozambique.

CHALLENGE

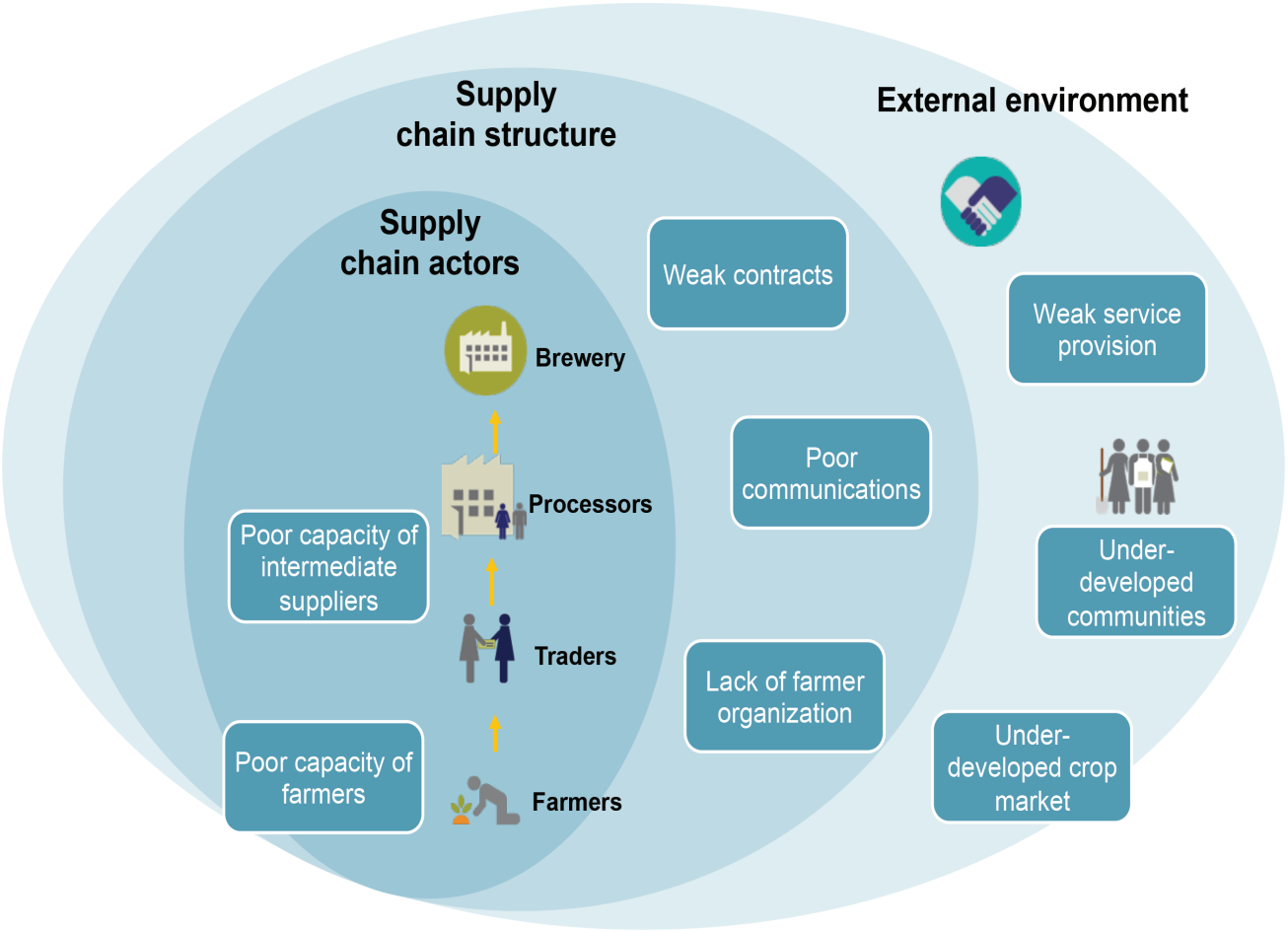
ENSURING LOCAL SUPPLY CHAINS ARE OPTIMIZED TO DELIVER VALUE FOR THE COMPANY AND FOR SMALLHOLDERS

SABMiller businesses have had to overcome a number of challenges in order to derive continued value from their local supply chains. We identified eight types of challenges that are common to smallholder supply chains in Africa under three broad themes: supply chain actors, supply chain structure and the external environment (see *Exhibit 1*).

Capacity within Africa's smallholder supply chains can be limited in various ways:

- **Poor capacity of farmers**: Most smallholder farmers in Africa live below the poverty line and have limited access to knowledge, inputs or finance. Farmers therefore often struggle to produce the required quantity and quality for commercial buyers, and achieve their income potential. Even when smallholder farmers adopt good practices, a lack of technology and insurance makes them particularly vulnerable to risks such as drought and crop disease.
- **Poor capacity of intermediate suppliers:** Other players in smallholder value chains (e.g., local traders and aggregators) can lack capacity in processing skills, business acumen and governance. For commercial buyers, this can increase procurement costs for raw materials at the required quality levels.

Exhibit 1: Range of challenges faced by companies when sourcing from smallholder farmers



Supply chain structures for smallholder sourcing can also be deficient due to:

- **Weak contracts:** Smallholder supply chains are typically complex. Multinational companies often do not have direct contracts with smallholder farmers or co-operatives. Instead, there are several supply chain intermediaries involved, and contractual arrangements between these intermediaries may be unclear or lack practical enforcement mechanisms.
- **Poor communications:** In Africa's smallholder supply chains, record-keeping practices can be rudimentary, especially at farm level. Businesses like Nile Breweries and Cervejas de Mocambique have had to make extra effort to understand smallholder needs, to communicate the businesses' sourcing requirements and to measure the impact of local sourcing on smallholders.
- **Lack of farmer organization:** Often smallholders are not well organized (for example, into co-operatives), and when they are, these organizations may not be commercially oriented. As a result, farmers have poor negotiating power, and commercial buyers can find it harder to trace the origins of their raw material to farm level.

The external environment can also exacerbate difficulties within supply chains, through:

- **Weak service provision:** Farmers rely on quality inputs, tools and finance to produce crops for commercial buyers. However, the reach and sophistication of local agri-businesses to service these needs are often limited. Many commercial financial institutions do not service smallholder communities due to the high levels of risk involved or cost required.
- **Under-developed rural communities:** Poor community services such as schools, health centers and infrastructure may prevent farmers from achieving their productive potential. Women, in particular, lack access to training and tools, even though they are heavily involved in on-farm labor. Many young people in rural communities do not view farming as a lucrative occupation and may prefer to migrate to cities for better jobs.
- **Under-developed market for crops:** When farmers have few alternatives, they can become dependent on a single or few buyers, thereby reducing their negotiating power. Smallholder farmers also risk not being able to sell their crop if buyers' needs change. In some cases, it is necessary to work with other stakeholders to help create a wider market for smallholder crops and mitigate the risk of dependence.

Agroways processing and storing facility for NBL sorghum in Jinja, Uganda.

OPPORTUNITY

ENHANCING THE COMMERCIAL AND SOCIAL VALUE OF LOCAL SMALLHOLDER SOURCING IN AFRICA

Local sourcing challenges can, in fact, represent opportunities to improve commercial and social value. The different levers of commercial value of strengthening existing supply chains are shown below in *Exhibit 2*, while the resulting outcomes for smallholder farmers and agricultural communities are shown as social levers in *Exhibit 3*.

In practice, increasing the commercial and social value of local sourcing requires interventions tailored to the local market. Many businesses have a wide range of supply chain structures, from sourcing via third party traders to fully integrated value chains established by the business to procure specific raw materials. Each country's agricultural sector is subject to a specific economic, social and cultural context, as well as unique climatic and environmental considerations that weigh on the yield potential for different commodities. The aim of this project was to develop a single approach to identifying opportunities within local supply chains, which could be applied in different contexts.

Exhibit 2: Commercial business levers applicable to local smallholder supply chains

	Lever	Description	How quantifiable?
Sourcing cost	1. Security of supply	Increasing productivity of smallholder farmers reduces the risk that the brewery loses invested inputs or has to find additional raw material.	●●
	2. Reduced side selling	Increasing loyalty of supply chain actors can reduce the risk that the brewery loses invested inputs or has to find additional raw material.	●●
	3. Re-balancing costs between buyer and supplier	Increasing productivity and business acumen of smallholder farmers may allow the brewery to transfer cost of inputs over time.	●●●
	4. Reducing processing costs	Improving quality can reduce processing or manufacturing costs to the brewery.	●
	5. Reconciling prices	Increasing productivity and business acumen of smallholder farmers may allow the brewery to reduce the price paid over time.	●●●
	6. More efficient supply chain management	Increasing the proportion of local sourcing helps to decrease logistics costs and exchange rate risk that comes with importing raw materials.	●
Reputational levers	7. Maintaining favorable excise	Reducing the risk that the government raises excise based on lack of evidence of generating shared value – or, increasing the likelihood of further tax breaks.	●
	8. Moving brands into favorable excise category	Increasing the quantity of locally-sourced produce for use in more production cycles can move more brands into lower excise categories.	●●
	9. Brand equity	Sustainability/local sourcing story can can drive brand recognition and sales growth.	●
	10. Regulatory burden	Improving and communicating farmer outcomes strengthens license to operate and governmnet goodwill, lowering the risk of harsher distribution regulation, and possibly increasing government willingness to tax illict brands.	●

● Not quantifiable ●● Quantifiable with several assumptions ●●● Quantifiable with few assumptions

Exhibit 3: Social levers applicable to local smallholder supply chains

Lever	Description	How quantifiable?
1. Increasing farmer incomes	Increasing farmer incomes through productivity improvements directly addresses rural poverty.	●●●
2. Reducing food insecurity	Increasing farmer productivity reduces food insecurity, as grains can also be used for food.	●●
3. Empowering women	Empowering women increases the impact of higher productivity and incomes. Women typically provide most labor but have less access to training and inputs, and have lower on-farm decision-making power. Women also invest more in their families, creating a multiplier effect.	●
4. Engaging youth	Youth represent the next generation of farming and the future prosperity of rural communities. They also have high potential to adopt new practices and technology.	●
5. Increasing access to services	Increasing access to services such as health, education, and water and sanitation raises quality of life in farming communities and allows farming families to focus on improving their production.	●●

● Not quantifiable ●● Quantifiable with several assumptions ●●● Quantifiable with few assumptions

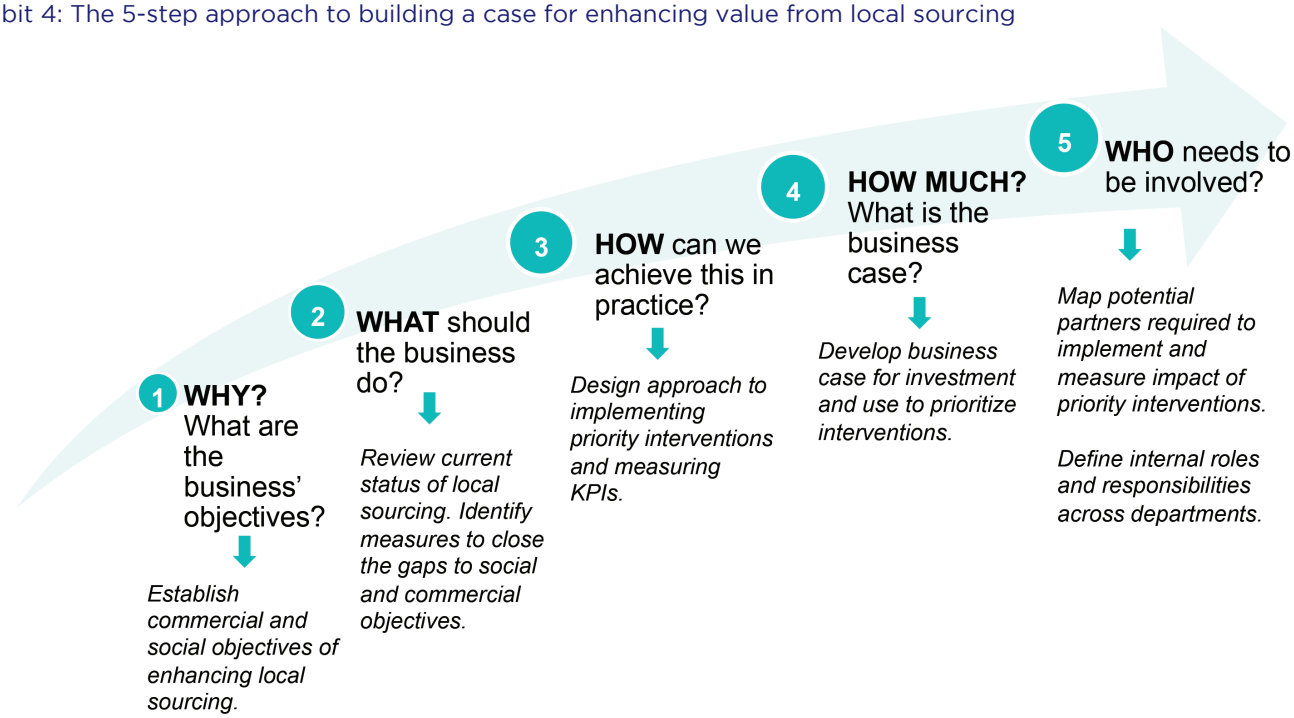
Thousands of bottles of Nile Gold travel through NBL's production line in Jinja, Uganda. This beer is brewed using locally sourced barley.

CAPTURING THE OPPORTUNITY

DEVELOPING THE BUSINESS CASE AND APPROACH TO ENHANCING THE COMMERCIAL VALUE AND SOCIAL IMPACT OF LOCAL SOURCING IN AFRICA

TechnoServe's five-step approach for identifying opportunities to enhance local sourcing value (see *Exhibit 4*) was piloted with Nile Breweries and Cervejas de Mocambique. A steering committee was established to guide the initiative, with representation from procurement, agriculture and corporate affairs teams — the key functions responsible for implementing an effective local sourcing strategy.

Exhibit 4: The 5-step approach to building a case for enhancing value from local sourcing



APPLICATION OF THE APPROACH TO NILE BREWERIES

Instituting productivity and professionalism in a developed supply chain.

Nile Breweries Limited (NBL) has a mature approach to procuring local materials. NBL was a pioneer in this space when it began sourcing sorghum to develop Eagle beer in 2003. In 2009, NBL also established barley sourcing programs in three areas of Uganda to supply its mainstream brands.

NBL has had a very positive impact on local rural communities through its supply chain. An independent report by the International Institute of Tropical Agriculture (IITA) in 2016 showed that sorghum farmers supplying NBL were achiev-

Uganda: Sorghum and Barley Sourcing

15,000 sorghum farmers

- Structured in 2003 specifically to produce Eagle beer
- Eagle now occupies the largest market share in Uganda

4,500 barley farmers

- Established direct, local sourcing structures in 2009
- Barley used in flagship local brews including Nile Special

ing yields that were 24 percent higher, and total household incomes twice as large, as those of sorghum farmers outside the supply chain. In barley, a successful project with IFDC recently enabled farmers in eastern Uganda to increase incomes by 80 percent. Overall, the IITA survey showed that 89 percent of sorghum farmers and 74 percent of barley farmers in NBL supply chains believe their livelihoods and welfare had improved compared with being outside the supply chain.

However there were also a number of challenges within the supply chain:

- Although there had been significant improvements since 2003, some sorghum farmers were still achieving only between 50 and 70 percent of attainable yields.
- Some of NBL's suppliers were not fulfilling all their contractual commitments.
- Lack of supply chain transparency was creating incentives for farmers to side sell, affecting NBL's return on invested inputs and services. Implementing initiatives to improve transparency, capacity and productivity in the supply chain would address these challenges and unlock greater commercial and social value.
- There were opportunities to further empower some cohorts within the supply chain, such as women and youth. For instance, for around 60 percent of households, only men were accessing training, despite women providing most labor. Women were also not fully involved in revenue decisions. Finally, the average age of farmers in the company's supply chains was over 40. Under-representation of youth poses a potential threat to future agricultural production.

NBL and TechnoServe drew up six key areas of intervention to mutually benefit the business and actors in its supply chain *(see Exhibit 6):*

1. Improve communications: The business can use a digital platform to systematically collect information on transactions — seed distribution, input sale, grain collection — all the way to the farmer level. With this information, the business can better understand how different parts of the supply chain are operating, and use this informa-

Exhibit 5: Outcomes of the five-step process in Uganda

Process	Uganda Example
Why? Business Objectives	• Increase quantity and quality at a fair price • Strengthen license to operate • Increase transparency in the supply chain • Improve farmer incomes with a focus on women and youth
What? Focus Areas	• Increase farmer access to information, inputs and finance • Re-affirm supplier incentives through better monitoring • Increase business acumen of key value chain players
How? Priority Interventions	• Install communications and transactions database • Build capacity of aggregators (training and mentoring) • Build capacity of agents (training) • Deliver farmer extension services • Enhance access to finance for inputs (partnership with financial institutions) • Support women and youth
How much? Business Case	• Increasing productivity improves security of supply • Reducing side selling curbs lost investment in supply chain • Improving quality reduces processing costs • Improving farmer livelihoods enhances license to operate
Who? Partners to Deliver	• Combined internal team from NBL technical and corporate affairs • Business service providers • Farmer extension service providers • Financial institutions

tion to improve operations and to communicate its impact to key stakeholders. The platform could also enable communication of relevant information (such as pricing and business requirements) to each level of the supply chain, including messages direct to farmers.

2. Improve aggregator capacity: NBL can help aggregators improve their business skills, governance, and agent and farmer management through standard training and individual mentoring of aggregator officials.

3. Improve agent capacity: NBL has an opportunity to train agents to better meet NBL requirements, so that farmer and agent incomes will increase, and NBL will have a more secure source of supply.

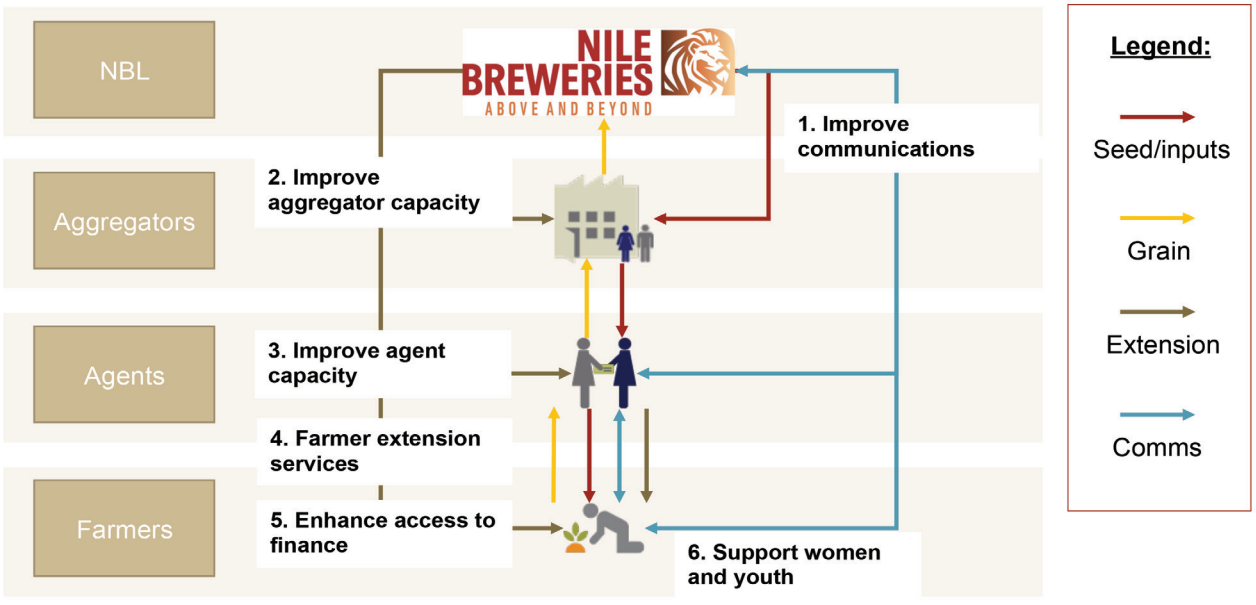
4. Farmer extension services: Two potential extension models were explored with NBL: either using existing agents to reach farmers with improved training or hiring and equipping farmer trainers from the local community to demonstrate best practices.

5. Enhance access to finance: By partnering with a financial institution, NBL could help farmers finance purchases of inputs and/or mechanization, which would then be deducted from crop payment upon delivery. NBL can also include training on financial literacy and introduce farmers to formal services including savings, loans and insurance to reduce their risk.

Farmer Alex in Bukedea in the Eastern Region of Uganda achieves high yields using best practices.

6. Support women and youth: NBL can deliver specific programs to help women and youth achieve their entrepreneurial ambitions in local communities, overcoming the challenges highlighted above.

Exhibit 6: Priority interventions mapped to NBL's supply chain



CERVEJAS DE MOÇAMBIQUE

A market systems approach for cassava and maize sourcing

Cervejas de Moçambique (CDM) relies on intermediaries to source cassava and maize from local smallholders. CDM launched Impala — the world's first commercial-scale, cassava-based beer — in 2011. Impala is now the third largest brand in CDM's portfolio. In both cassava and maize, CDM has partnered with a first-tier supplier to help organize farmers, arrange for inputs and aggregate the product to CDM.

CDM's cassava and maize sourcing already generates impact for local smallholders in Mozambique. Impala marks the first meaningful opportunity for cassava growers in Mozambique to enter a commercial supply chain, and as a result, these farmers now have a guaranteed market for their crops and have generated a combined $1 million in income. In maize, through CDM's partnership with Empresa de Comercializacao Agricola (ECA), farmer incomes have increased by an average of 90 percent since 2011.

However, there were four overarching challenges in CDM's cassava supply chain.

- Farmer productivity was at least 20 percent below potential in cassava, although data limitations meant that the extent of the challenge could be much greater.
- CDM and its supply partners were sometimes unclear about one another's expectations in terms of the quantity and quality required by the business.
- All supply chain actors — from the cassava farmers to CDM itself — were carrying extra risk by participating in a value chain with a single off-taker.
- In maize, CDM's core local supplier, ECA, was already achieving remarkable improvements for smallholder livelihoods; however, CDM did not have full visibility into this impact. CDM saw an opportunity to support ECA to expand its impact by providing long-term supply contracts and sharing SABMiller's own best practices.

Mozambique: Cassava and Maize Sourcing

Local cassava supply chain

- Established local sourcing structures in 2011 specifically to produce Impala beer
- Impala is the third largest of CDM's ten beer brands

Local maize supply chain

- Established local sourcing via ECA
- Maize is used in Chibuku, an opaque beer, as well as Laurentina Clara and Super Maheu

TechnoServe helped CDM to develop four key areas of intervention to mutually benefit the business and its supply chain (see *Exhibit 8*):

1. Create and train farmer groups: CDM can work with its supplier to support the creation of formal cassava farmer groups. Formal farmer groups can enable improved access to training and inputs and facilitate the management of sourcing logistics and communications.

2. Enterprise farming model for cassava: CDM can support its cassava supplier to develop high performing smallholders into more commercial enterprises, providing them with access to land and inputs and guaranteeing a minimum volume of supply for CDM. By demonstrating best practices, these farmers will also help raise the productivity of other farmers.

3. Increase supply chain transparency: CDM has identified key KPIs to collect from the supply chain

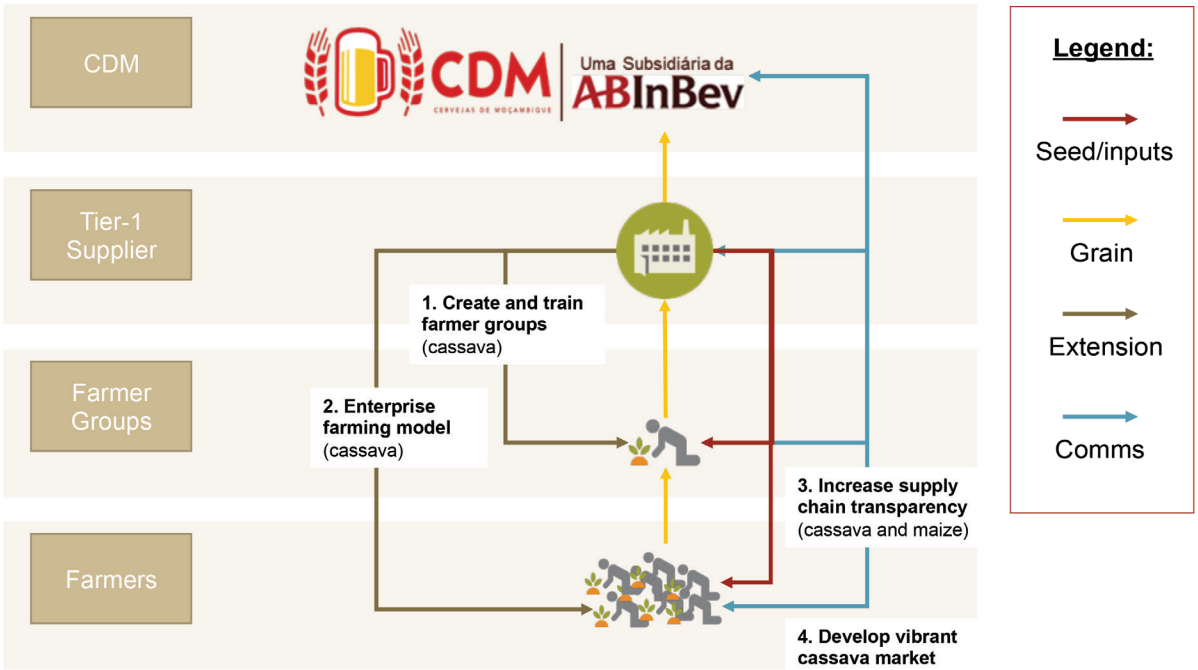
via its intermediate suppliers. This will enable farmers and suppliers to better understand and meet CDM's expectations for quality, quantity and smallholder impact, and provide an evidence base of CDM's impact.

4. Develop a vibrant cassava market: CDM can support the creation of additional cassava markets by contributing to industry platforms. This will increase opportunities for cassava farmers, reduce the risk of farmer dependency on CDM, and provide CDM with additional buyers for starch produced in its new plant (which it shares with Ilovo, an African sugar producer).

Exhibit 7: The five-step process in Mozambique

Process	Mozambique Example
Why? Business Objectives	• Meet CDM sourcing requirements at achievable cost • Strengthen license to operate • Improve farmer incomes and social impact
What? Focus Areas	• Increase farmer access to information, inputs and finance • Increase farmer opportunity to produce at scale • Improve transparency and governance in supply chain • Reduce risk of single-buyer relationships for farmers
How? Priority Interventions	• Create and train farmer groups • Enterprise farming model for cassava farmers • Increase supply chain transparency, clearly define supplier expectations • Develop vibrant cassava market with additional off-takers
How much? Business Case	• Increasing productivity improves security of supply • Improving farmer livelihoods (and better communicating this impact) enhances license to operate • Reducing monopsony power improves license to operate and creates sales opportunities for starch plants
Who? Partners to deliver	• Combined internal team from NBL technical and corporate affairs • Business service providers • Farmer extension service providers • Financial institutions

Exhibit 8: Intervention areas in CDM's cassava and maize value chain



KEY TAKEAWAYS

This case demonstrates the significant commercial and social value that can be generated by integrating local smallholder sourcing in emerging markets into a company's long-term business strategy. Locally sourced materials in emerging markets are not always cheaper than importing when considered at face value — especially when the supply chain must be established from scratch. Both sorghum and cassava beers were new ventures and the investment — and risk — in creating new production processes and in setting up a supply chain required creativity and courage. In each case, the company was able to work with the government to make the business case viable through favorable excise rates, recognizing the "win-win-win" approach of improved farmer livelihoods and reduced risk, enhanced commercial value, and reduced illicit alcohol consumption. Once the initial investment has been made, local sourcing can become cheaper than alternatives, as supply chain structures become more efficient and the business benefits from reduced risk of fluctuations in exchange rates and international commodity prices.

Once established, local sourcing can be further enhanced to generate additional value to both smallholders and the commercial business. Both NBL and CDM were already generating significant commercial value from sales of products made possible through local sourcing. They were also having an impact on smallholders through yield and income improvements since joining the commercial supply chain. However, local sourcing can be challenging, and regular review is required for continuous improvement and to ensure that the system is delivering its potential.

Integrating local smallholder sourcing as a core part of emerging market business strategy requires strong leadership and cross-functional engagement. The involvement of procurement and supply chain teams is critical for setting clear expectations with suppliers and managing supply chains efficiently. Involving the sales and marketing teams is key to increasing brand equity. Corporate affairs teams can help ensure that the sourcing system is a part of corporate outreach and is integrated with initiatives of other buyers and external stakeholders. Finally, business leadership brings together these different functions to prioritize activities and oversee required investments.

Developing a concrete business case for local smallholder sourcing initiatives helps to bring in internal stakeholders and facilitate required investments. Where possible, the commercial benefits of enhancing local supply chains, such as increasing security of supply or lowering procurement costs, should be quantified and assessed against the estimated costs of implementing necessary interventions. However, non-quantifiable "levers," such as strengthening the license to operate, maintaining strong relationships with governments, and generating brand equity, should also be considered. In addition to enabling mobilization of resources, the business case can help in prioritizing activities and determining the depth of investment against its return.

This case highlights the importance of systematic data collection in local supply chains. In both Uganda and Mozambique, the five-step process resulted in specific opportunities to enhance social and commercial value of local sourcing. In the future, more comprehensive reporting systems will allow each business to regularly track its performance against its stated objectives. This will enable the business to see how local sourcing is impacting all three stakeholders — business, smallholders and governments — in terms of value and risk. Where the "win-win-win" strategy is being met, the business will have concrete data to quantify its value and impact and share this with government and other stakeholders. Where it is not, data collection can help point to measures to course correct.

Initiatives to improve smallholder livelihoods should help to reduce farmers' risk, as well as increase incomes. In moving from what is typically subsistence farming into a commercial supply chain, smallholders often take on additional investment costs and new risks, such as failing to meet quality requirements and receiving lower-than-expected prices. Even when smallholders apply best practices, they are vulnerable to factors outside of their control, such as climatic events, pests or crop disease. Corporate buyers can help share this risk — for example, by improving transparency and communications, facilitating access to technologies (e.g., drought-resistant seed) and partnering with financial institutions to increase access to financial services, such as crop insurance.

Improvements to local supply chains can be made by corporates even when they do not source directly from smallholders, by adopting an "ecosystem approach." The corporate buyer is not responsible for everything. It is, however, in a unique position to define its objectives for commercial and social value, and to align the incentives of its supply chain partners to those objectives. Corporates can also look beyond their immediate supply chains and engage with external stakeholders, such as other buyers, government institutions, finance providers and NGOs, to further develop market ecosystems that work for the benefit of smallholders.

TECHNOSERVE
BUSINESS SOLUTIONS TO POVERTY

syngenta

TechnoServe Initiative for Inclusive Agricultural Business Models

Syngenta: Addressing Barriers to Adoption of High-quality Agricultural Inputs Among African Smallholder Farmers

EXECUTIVE SUMMARY

Multinational companies have made bold sustainability commitments with potential to effect substantial poverty reduction. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in designing win-win approaches to meeting their sustainability commitments related to smallholder farmers. This involved developing inclusive and sustainable business models that could both improve farmer livelihoods and reduce their vulnerability while creating commercial value for the company. This case study documents the experience of one of these four companies, Syngenta, including the company's specific opportunity, the model designed to capture this opportunity, and takeaways for consideration by other industry actors.

Syngenta aims to build a $1 billion business in Africa and empower 20 million smallholder farmers to sustainably increase productivity. Meeting these growth targets and commitments would require Syngenta to adapt its business model in order to successfully reach African smallholder farmers, which manage 80 percent of the continent's farmland and produce the majority of its food supply.[1] This would also provide a channel for Syngenta to support the continent's agricultural transformation, as high-quality inputs used in conjunction with good agricultural practices can enable smallholder farmers in sub-Saharan Africa to narrow the region's estimated yield gap of 76 percent[2] while raising quality levels. These changes would lead to higher incomes as well as greater food security and livelihood resilience. Last but not least, high-quality inputs can help smallholder farmers to better withstand climate-related issues, such as drought, flooding, and increased incidence of pest and disease outbreak.

Using Kenya as a platform, Syngenta partnered with TechnoServe to address the unique risks and barriers that African smallholder farmers face in adopting high-quality agricultural inputs. In addition to addressing smallholder farmers' distrust of improved inputs and the financial barriers to their access, Syngenta asked TechnoServe to help train farmers on good agricultural practices and to strengthen their access to markets, where they could sell their crops at better prices. By establishing a market access component, Syngenta sought to improve and sustain farmers' incomes in the face of productivity-driven increases in market supply. Specifically, TechnoServe assisted farmer business organizations (FBOs) in the management of aggregation stores, including potato cold storage facilities — which help farmers avoid selling when market supply is at its peak — allowing them to secure direct contracts with large volume commercial buyers.

The model has reached over 25,500 Kenyan tomato and potato smallholder farmers to date, resulting in significant yield and income improvements for farmers alongside increased uptake of high-quality inputs. Across the four crop seasons in which this model has been applied to date, participating tomato farmers averaged a 185 percent increase in yield and 181 percent increase in income (106 and 138 percentage points, respectively, above average control group changes). Participating potato farmers averaged a 38 percent increase in yield and a 48 percent increase in income (48 and 39 percentage points, respectively, above average control group changes). Annual investment in high-quality agricultural inputs — inclusive of fertilizer, as well as both Syngenta and non-Syngenta seed and crop protection products — across the four seasons to date increased between 40 and 300 percent among potato farmers and between 60 and 180 percent among tomato farmers.[3] The share of potato growers in the program specifically using Syngenta crop pro-

1. "Smallholders and Family Farmers." UN FAO fact sheet, 2012.

2. "Estimated difference between actual yields and their practical potential for major crops." *The State of Food and Agriculture: Innovation in Family Farming*. UN FAO, 2014.

3. The large ranges in proportional spending increases reflect regional variations in farmers' initial spending on inputs.

tection has also increased significantly. Finally, 100 percent of tomato growers in the program tried Syngenta's Kilele tomato seed and many have adopted this high yielding hybrid variety in lieu of the low yielding seeds they historically used.

Business models designed to reach smallholder farmers can eventually transition to lower cost, ongoing delivery models; however, enabling the initial customer transformation required for this transition is prohibitively expensive for any single market actor to bear at scale. Getting smallholders to a point at which they are sustainably reaching their productivity potential requires significant initial investment in farmer training, strengthening market access and improving the broader enabling environment. As more multinational companies seek to reach low income, rural populations in sub-Saharan Africa (SSA) with high impact products and services, there is an increasingly clear need and opportunity to reduce investment costs in the initial customer transformation stage through innovative partnerships with a broad array of organizations, including other companies, donors and government actors. Syngenta has begun to test this approach through its current partnership with ICL Fertilizer Limited and Sanergy in Kenya. Co-investing with crop buyers is another way in which model delivery costs can be reduced, particularly when considering the strong business case for buyers in SSA to invest in improving the consistency and quality of high-value cash crops grown by smallholders.

Joshua Kibet, a TechnoServe farmer trainer, gives a training session at a demonstration plot in Kapyego, Kenya.

BACKGROUND

In recent years, an increasing number of multinational companies have made bold sustainability commitments with the potential to effect substantial poverty reduction. In recognition of this great potential, the Ford Foundation and TechnoServe have partnered to support multinational companies in achieving their sustainability commitments related to smallholder farmers. Through a grant from the Ford Foundation and matching company investment, TechnoServe supported four multinational companies in developing inclusive and sustainable business models that could improve farmer livelihoods and reduce their vulnerability while creating commercial value for the company.

Syngenta is a leading agriculture company operating in over 90 countries; it seeks to improve global food security by enabling millions of farmers to make better use of available resources through innovative crop solutions.[4] This case study documents Syngenta's partnership with TechnoServe under the Mavuno Zaidi project in Kenya to address the unique risks that smallholder farmers face in adopting high-quality agricultural inputs, including suboptimal production practices and lack of access to reliable markets. Syngenta piloted the model in partnership with TechnoServe with roughly 2,400 smallholder potato and tomato farmers from 2014 to 2015, and by 2016 had rolled it out to over 25,500 farmers. ICL Fertilizers Ltd., Sanergy and the Ford Foundation provided co-funding to support Mavuno Zaidi's expansion in 2016 through individual grants to TechnoServe for its work training farmers and strengthening their access to markets. This report considers the project's evolution over several seasons, focusing on Syngenta's specific opportunity in Africa, the model designed to capture this opportunity in Kenya and takeaways for consideration by other industry actors.

Under its Good Growth Plan, Syngenta aims to empower 20 million smallholder farmers to sustainably increase productivity by 50 percent as part of its broader commitment of supporting farmers to meet the challenge of feeding a rising population. Syngenta recognizes the critical nature of catalyzing productivity improvements among smallholder farmers, given that they represent the majority of the world's farmers — an estimated 2.5 billion people managing 500 million households that rely on agriculture for their livelihoods.[5] The company therefore aims to provide tools and training that enable smallholders to improve their productivity and incomes.[6] In 2014, Syngenta estimated that it had indirectly reached 13.8 million smallholders through its product sales, and by 2015 it had extended this reach to 17.2 million.[7]

The use of high-quality inputs in conjunction with best agronomic practices led to a 48 percent increase in income for participating potato farmers.

4. http://www4.syngenta.com
5. IFAD
6. http://www4.syngenta.com/what-we-do/the-good-growth-plan
7. Syngenta: The Good Growth Plan 2015 Progress Report.

OPPORTUNITY

GROW AFRICAN MARKET DEMAND WHILE IMPROVING SMALLHOLDER LIVELIHOODS

In 2012, Syngenta announced its goal of building a $1 billion business in Africa over the subsequent 10 years. As a company focused on seeds and crop protection solutions for eight crops[8] comprising the majority of global food production, Syngenta views Africa as a strategic region for the company's future growth. Through expansion of its Africa business, Syngenta aims to support the continent's agricultural transformation by helping to sustainably increase productivity, thereby improving food security and reducing poverty.[9] Over this 10-year period, the company has set out to reach more than 5 million farmers across the continent, enabling them to achieve a minimum 50 percent increase in productivity without relying on additional land and inputs, such as water or chemicals. The company has committed to investing $500 million in Africa — in collaboration with local partners — to support this goal.[10]

Syngenta recognized that building a $1 billion business in Africa and securing long-term, sustainable demand for its products would require outreach to smallholder farmers through a new business model. Syngenta's Africa business had historically targeted larger-scale, commercial farmers. However, meeting its new growth targets and commitments required adapting this African business model to reach smallholder farmers, who manage 80 percent of farmland in sub-Saharan Africa and produce the majority of the continent's food supply.[11] Smallholder farmers typically cultivate multiple crops on fewer than 2 hectares of land, often facing high financial risks with low returns.[12] Unlike large commercial farmers, smallholder farmers lack access to external financing and means of risk mitigation, such as crop insurance, irrigation, storage, mechanization and direct contracts with large volume buyers.

Access to, and use of, improved agricultural inputs has tremendous potential to improve the viability of smallholder livelihoods. The Food and Agriculture Organization (FAO) estimates that the productivity levels of major crops across sub-Saharan Africa are 76 percent below their practical potential.[13] Optimization of inputs and management — including improved seed and crop protection — can enable farmers to close this yield gap and raise quality levels, leading to higher incomes and greater livelihood resilience. Improved seed and crop protection can also help smallholder farmers withstand climate-related issues, such as drought, flooding, and increased incidence of pest and disease outbreak.

However, smallholder farmers in many parts of Africa are reluctant to adopt high-quality inputs. Smallholder farmers face physical, financial and psychological barriers to accessing improved inputs, as well as risks to recouping their investment, driven by factors often outside of their control. A summary of these barriers and risks is included in *Exhibit 1*.

Gladys, a TechnoServe farmer trainer, demonstrates best agronomic practices.

8. Syngenta focuses on improved seeds and crop protection solutions for eight major crops: cereals, corn, diverse field crops, rice, soybean, specialty crops, sugar cane and vegetables.

9. "Syngenta to expand presence in Africa: contributing to the transformation of agriculture." PR Newswire, May 18, 2012.

10. Syngenta 2014 Annual Report.

11. "Smallholders and Family Farmers." UN FAO fact sheet, 2012.

12. http://www4.syngenta.com/what-we-do/the-good-growth-plan/empower-smallholders

13. *The State of Food and Agriculture: Innovation in Family Farming*. UN FAO, 2014.

Exhibit 1: Barriers and risks to smallholder adoption of high-quality inputs

	Factor	Description
BARRIERS Various factors create physical, psychological and financial barriers to smallholder access to high-quality inputs.	Lack of trust	The prevalence of poor-quality and counterfeit agricultural inputs in markets like Kenya has caused skepticism of improved inputs among many smallholder farmers.
	Low perceived value	Smallholders often lack an understanding or full appreciation of the benefits of high-quality inputs, which is reinforced by the common practice of using (free) seeds from a previous harvest despite their significantly lower productivity.
	Lack of access to cash or financing	Smallholders often lack cash at the beginning of the season when most inputs are purchased, particularly when there are competing household investment needs — for example, crop planting and school fees may be due at the same time of year — and have difficulty accessing affordable means of financing inputs in the face of cash flow constraints and risk perceptions.
	Poor rural infrastructure	Poor roads, electricity and communications infrastructure in many rural areas across Africa limit smallholders' physical access to high-quality inputs from established brands, as well as their access to markets to sell any crop surpluses beyond household consumption requirements.
RISKS Various factors put smallholders at risk of failing on their investment in high-quality inputs.	Crop price volatility	Like most farmers, smallholders operate at the whim of market demand and supply forces, which can create dramatic price volatility. Smallholders also lack the means to mitigate price volatility risks, such as facilities to store crops during peak supply, or forward contracts with buyers guaranteeing a minimum price.
	Climate variability	Increasingly volatile rainfall and temperature patterns, unusual pest and disease outbreaks, and shifting crop suitability — combined with lack of access to irrigation or crop insurance and limited knowledge of how to address these challenges — puts smallholders at a growing risk of losing part or all of their harvest along with any corresponding investment they may have made in high-quality inputs.
	Limited knowledge of best practices	Lack of knowledge around the proper and effective use of high-quality inputs limits smallholders' ability to realize their full potential for yield and quality improvement.
	Soil and land degradation	Smallholder farmers often work on land suffering from erosion or poor soil quality, limiting potential yield and quality improvements from improved seed or crop protection without complimentary processes to replenish soil quality.

CAPTURING THE OPPORTUNITY

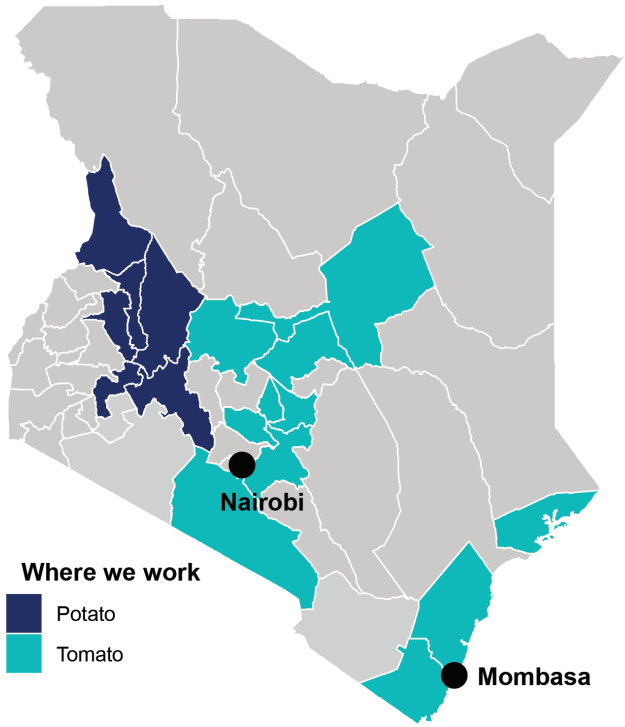
IMPROVING ACCESS WHILE MITIGATING FARMER RISK

Syngenta sought to address the unique risks and barriers that African smallholder farmers face in adopting high-quality agricultural inputs. Syngenta decided to develop and pilot a model for overcoming these challenges in Kenya, where it already had a sizeable sales operation. It also opted to focus on high-quality inputs for tomato and potato, two crops with strong local demand that was projected to grow due to several factors, including increased incomes, rapid urbanization, the rise of tourism and subsequent growth of processing industries.[14] Syngenta commissioned TechnoServe to conduct an initial market assessment highlighting that smallholder yields and incomes can be improved through a model that:

1. Proves the value of high-quality inputs and overcomes smallholder farmer mistrust;
2. Equips smallholder farmers to realize a compelling return on their investment (ROI) in high-quality inputs, including the mitigation of farmer income risks;
3. Addresses financial barriers to smallholder farmers' access to high-quality inputs.

Syngenta needed to physically demonstrate the business case for smallholder investment in order to build farmer trust, showcasing how high-quality inputs could help farmers optimize their yields and incomes. To prove the value proposition of high-quality inputs to smallholder farmers, Syngenta worked with TechnoServe to set up over 30 tomato and 30 potato demonstration plots throughout several regions in Kenya (see *Exhibit 2*), on which lead farmers apply high-quality seed, fertilizer and crop protection and carry out best agronomic practices. These plots produce visibly greater volumes of each crop, as well as desirable quality traits, such as size and color. The results provide a visually compelling case for surrounding smallholder farmers who are considering investing in improved inputs and implementing best agronomic practices. Syngenta also hosts regular field days across these regions, showcasing its products and inviting farmers who have invested in and used Syngenta and other high-quality inputs to speak to their peers about the benefits they have experienced.

Exhibit 2: Counties in Kenya where the model has been rolled out



Tomato	Potato
Embu	Baringo
Isiolo	Bomet
Kajiado	Elgeyo-Marakwet
Kilifi	Kericho
Kirinyaga	Nakuru
Kwale	Pokot
Lamu	Uasin Gishu
Laikipia	
Machakos	
Meru	
Murang'a	
Tharaka Nithi	

14. TechnoServe Kenya Tomato and Potato Market Assessment, 2014.

Syngenta also needed to equip farmers with an understanding of best agronomic practices to help them secure a strong return on investment in improved inputs. Syngenta worked with TechnoServe to design and deploy a training curriculum for over 25,500 farmers — more than 30 percent of whom are women — in key tomato and potato cultivation areas to promote best agronomic practices for improving yields and quality levels. Farmers in the program receive seven to eight hands-on training modules during the first season. These modules are deployed by trainers living and working in the farmers' communities. Training topics include: land preparation and planting; crop nutrition; pest and disease identification; crop protection and agrochemical use; sorting; grading; harvest and post-harvest handling; and other topics specific to the crop, such as nursery establishment for tomatoes. Community trainers then reinforce messages through visits to individual farms. During group training sessions and individual farm visits, trainers spend significant time explaining the benefits of high-quality inputs and how to use them correctly. After the first season, farmer adoption is assessed and refresher sessions are provided on the weakest areas with the highest potential for impact on farmer yields and incomes. Syngenta and TechnoServe are also assessing opportunities to integrate e-learning and SMS reminders into the model, particularly in order to aid farmers in responding to emergencies such as pest and disease outbreaks.

Farmer ROI needed to be further secured by supporting smallholders' improved access to output markets, thus mitigating risks to farmer income. Smallholder tomato and potato productivity was expected to rise significantly as a result of the adoption of high-quality inputs in conjunction with improved agronomic practices. Syngenta therefore sought to ensure the viability of smallholder incomes in the face of increased market supply. Syngenta and TechnoServe collaborated to design and implement a two-fold approach to improving market access for smallholders in the program:

1. Supporting farmer business organizations (FBOs) to set up and manage aggregation stores, including potato cold storage facilities; and
2. Facilitating direct contracts between FBOs and commercial buyers.

Aggregation stores enable FBOs to purchase from farmers at a guaranteed price and increase the efficiency of the value chain. Where collection volumes are high, aggregation stores are permanent physical buildings that house and collect crops on a daily basis. High-volume potato aggregation stores are also equipped with low-cost cold storage technology built with locally available materials: a hut with a basic drip water system that passes through charcoal lined walls, requiring only access to a water source and diesel pump. In lower volume areas, aggregation stores are pop-up collection centers established in central locations with minimal infrastructure and specified weekly pickup times. TechnoServe facilitates direct contracts between FBOs and anchor buyers by holding buyer forums. During these forums, high-volume tomato and potato buyers — for example large fresh market traders, hospitality and government institutions, supermarkets, and large processor — learn about FBO production expectations and make volume purchase commitments. To date, six major processors and numerous large volume fresh market traders have been engaged. While processors require specific varieties and sizes that can be difficult for aggregation stores to fulfill, large volume fresh market traders have been more willing and able to contract with FBOs.

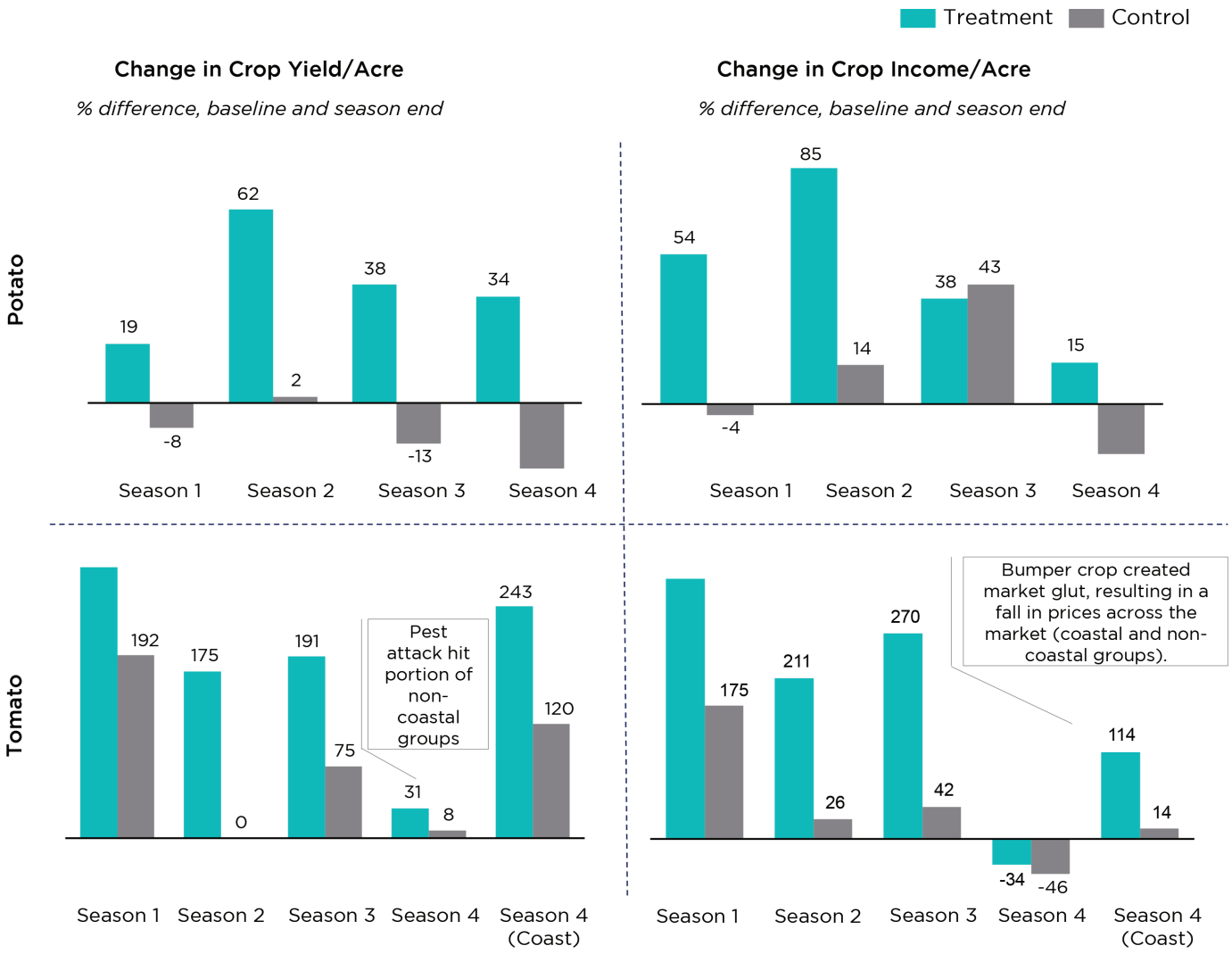
Cold storage facilities, such as this one in Kapyego, Kenya allow farmer business organizations to purchase from smallholder farmers at a guaranteed price.

Finally, Syngenta needed to overcome farmer capital constraints by facilitating access to finance for inputs. Syngenta worked with TechnoServe to develop a network of 13 financial partners in Kenya, including Equity Bank, Umati Capital, Chase Bank and Cooperative Bank. To date, 500 farmers have accessed an average of $37,500 in aggregate credit in each of the four seasons. This represents a small fraction of total farmers in the program, as the financial institutions' high interest rates and stringent collateral requirements — stemming from limited familiarity and experience serving smallholder farmers — have deterred additional farmers from taking on credit, even when provided with the opportunity.

Strengthening the access to finance component of the model is a top priority for Syngenta, which is exploring the potential of less traditional options, such as commitment-based mobile savings products, as alternatives to credit.

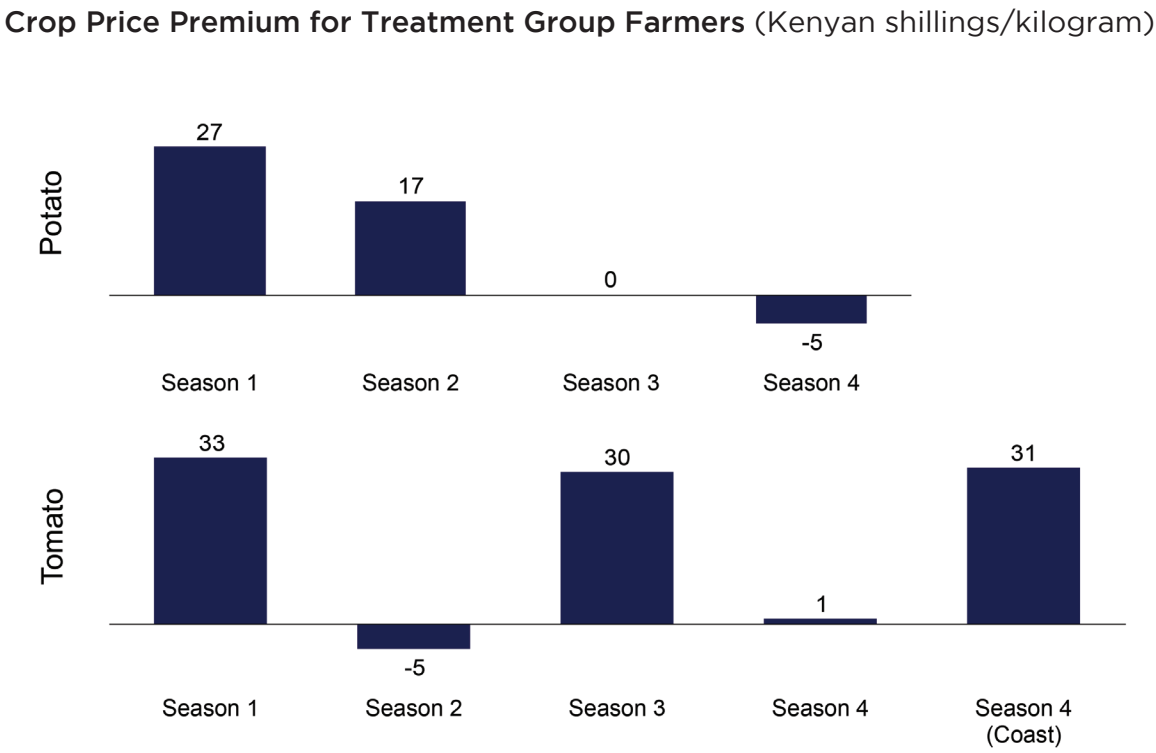
Rollout of the model has resulted in significant farmer yield and income improvements. Across the four seasons to date, participating potato farmers averaged a 38 percent increase in yield and a 48 percent increase in income (48 and 39 percentage points higher than control group averages). Participating tomato farmers averaged a 185 percent increase in yield and 181 percent increase in income (106 and 138

Exhibit 3: Change in crop yields and incomes for participating farmers versus control groups



Source: TechnoServe analysis of Syngenta project data

Exhibit 4: Difference in price secured by treatment versus control farmers at end of season



Source: TechnoServe analysis of Syngenta project data

percentage points above control group averages).[15] Exhibit 3 shows specific season-by-season changes in crop yield and income from baseline to season's end for participating and control group farmers.

The model has also driven increased use of high-quality agricultural inputs among participating smallholder farmers. Annual investment in high-quality agricultural inputs — inclusive of fertilizer as well as both Syngenta and non-Syngenta seed and crop protection products — across the four seasons to date increased between 40 and 300 percent among potato farmers, and between 60 and 180 percent among tomato farmers.[16] The share of potato growers in the program specifically using Syngenta crop protection also increased significantly. Finally, 100 percent of tomato growers in the program tried Syngenta's Kilele tomato seed, and many have adopted this high-yielding hybrid variety in lieu of the low-yielding seeds they historically used.

Treatment farmers have also secured higher prices than control farmers in some seasons. Crop sales data shows participating potato and tomato farmers securing prices as high as 27 and 33 percent higher than control group farmers, respectively. However, higher crop price is not a consistent outcome across all seasons, as shown in Exhibit 4. This reflects the complex and challenging nature of market access dynamics in smallholder agriculture. Even when farmers are supported to aggregate their product and sell directly to large buyers, it is difficult to fully protect them from price volatility.

KEY TAKEAWAYS

Effectively reaching vulnerable populations, such as smallholder farmers, necessitates business models that address the challenges of the broader ecosystem and the unique risks faced by that target population. Syngenta set out to reach smallholder farmers with improved seed and crop protection as part of its plan to build a $1 billion business in Africa. However, the company recognized that its traditional sales model would have to be adapted to effectively reach smallholder farmers in Africa. Specifically, it had to address smallholders' lack of trust, barriers to access, limited understanding of high-quality inputs and the resulting inability to realize high-quality inputs' value proposition. For Syngenta, this meant physically proving the value of high-quality inputs through demonstration plots across its rural sales areas; actively facilitating the reduction of smallholders' investment risk by working with TechnoServe to provide them with agronomic training and support in securing markets for their crop (including accessing appropriate storage facilities to avoid selling when market supply is at its peak); and reducing financial barriers to accessing inputs by facilitating farmer access to credit.

Business models designed to reach smallholder farmers can eventually transition to lower cost, ongoing delivery models. However, enabling the necessary initial customer transformation for this transition is prohibitively expensive for any single market actor to bear at scale. Getting smallholders to a point at which they are sustainably reaching their productivity potential requires significant initial investment in farmer training, strengthening farmer access to markets, and improving the broader enabling environment. As more multinational companies seek to reach low-income, rural populations in sub-Saharan Africa with high-impact products and services, there are increasingly clear needs and opportunities to reduce the investment cost of the initial customer transformation stage. This can be accomplished through innovative partnerships with a broad array of organizations, including other companies, donors and government actors. In Kenya, Syngenta has begun to test this approach through its current partnerships with ICL and Sanergy, two organizations focused on fertilizer that invested in the model to increase their own product reach. This has reduced the model cost for each partner while enabling farmers to access a more complete package of inputs. Co-investing with crop buyers is another way in which model delivery costs can be reduced during the initial transformation stage, particularly given the strong business case for buyers in sub-Saharan Africa to invest in improving the consistency and quality of smallholder crops. While Syngenta has made a costly initial, multi-year investment, scaling the model ultimately requires additional donor and private sector partners.

Access to finance is difficult to solve in high-value cash crops such as tomato and potato, but it is often critical to enabling smallholder farmers to maximize productivity. In the next phase of model evolution, Syngenta is focusing on solving the access to finance component by developing best practice models for enabling input finance in open-market value chains. Syngenta is seeking banks, investors and donors to join the company as it works to develop and implement models that will enable many smallholder farmers to access finance for the first time.

ABOUT TECHNOSERVE

TechnoServe is a leader in harnessing the power of the private sector to help people lift themselves out of poverty.

A nonprofit organization operating in 29 countries, we work with enterprising men and women in the developing world to build competitive farms, businesses and industries. By linking people to information, capital and markets, we have helped millions to create lasting prosperity for their families and communities.

With nearly 50 years of proven results, TechnoServe believes in the power of private enterprise to transform lives.

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