

Upgrading and Deepening the Value Chain

Increasing the competitiveness of the value chain by moving it in a new direction—toward a new market, market segment, or customer; toward increased efficiency within the value chain; or toward adding operations within the value chain, for example—is referred to as upgrading. Actions that upgrade or increase the competitiveness of a value chain can take many forms and include improving product quality, adding more operations to the value chain, bringing value chain operations into a country from overseas, capturing a new market channel, and entering a separate value chain (new market) with a similar product.¹

In deepening the value chain, firms address gaps including unmet market demand and value, opportunities for vertical or horizontal integration, greater specialization, and the expansion of services to other value chain members.

The gap analysis (described in tool 3) methodology provides a means to identify additional operations that may usefully be added to the value chain. It also provides guidance on how best to prioritize opportunities and adjust or expand operations.

Adding value is often incremental, but it can often be accelerated by FDI and joint ventures—especially with previous buyers. As well as increasing specialization, adding value also frequently means bringing operations in-country that were previously conducted abroad.

DEEPENING THROUGH ADDING OPERATIONS

Actions to deepen the value chain must be driven by market opportunities and demands. The addition of operations requires sound market analysis, strategic planning, and good communication among value chain participants. The value chain must prioritize the possible opportunities that it identifies and then act as a unit to add them. In Mongolia, a competitiveness initiative was able to work with the meat industry in order to identify possible operations to incorporate (see box 4.4).

DEEPENING THROUGH SPECIALIZATION

Opportunities for specialization rest on the size of the market for the specialized operation or service, and on the confidence that the customers of the specialized business or operation have that the work will be carried out to an appropriate quality level with needed degrees of customer service, requisite confidentiality, and on a sustained basis (that is, the specialized business will not fail and disappear). These criteria are, in many respects, the entry criteria for value chain deepening through specialized operations.

Specialization may offer the value chain the opportunity to accomplish otherwise unattainable goals. Risk and investment costs may now be shared and offset by the cost savings that result from cooperation and information sharing.

METHODS FOR DEEPENING THE VALUE CHAIN

New entrants/entrepreneurs

Entrepreneurship generates many new entrants, added operations, and captured value in every value chain. In each market, entrepreneurs arise to take advantage of market opportunities and create links with value chains. Such new business formation can be encouraged by access to business services (such as availability of finance) and by good relationships and familiarity with the needs of the other actors in the value chain.

New investment (domestic and foreign direct)

Foreign direct investment by multinational corporations is one of the most common ways that technologies are transferred to value chains in developing and emerging economies. Also, knowledgeable domestic businesses can purchase or license new technologies. Bringing quality sorting or product-packaging operations into the developing country, for example, can increase cost efficiency and

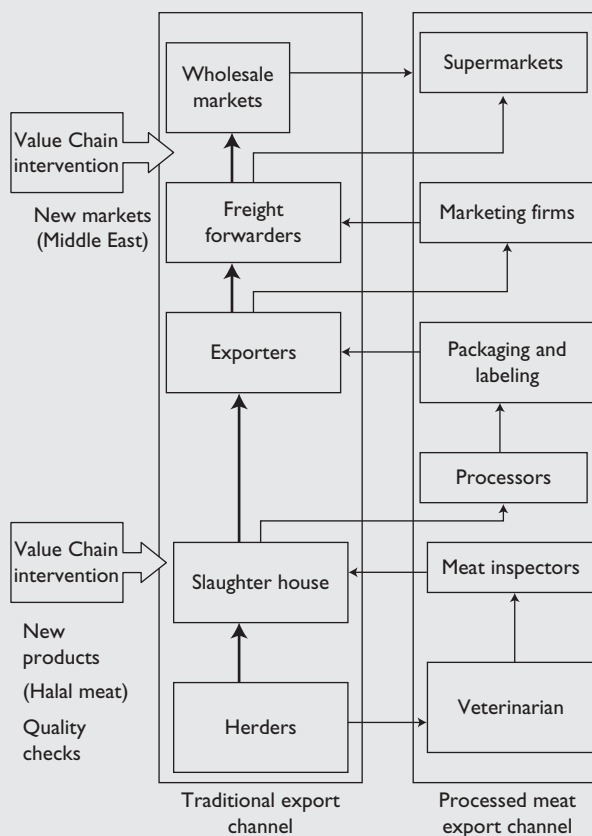
Box 4.4 Upgrading the Value Chain—Mongolian Meat Industry

The Mongolian meat industry has traditionally been oriented toward low-end exports of animal carcasses to Siberia. Through work with the Mongolian Competitiveness Initiative (MCI)^a, plans were made to integrate value-added operations such as quality checks, packaging, and marketing into the meat industry value chain. These upgrades were intended to reorient firms toward more demanding and lucrative export markets.

With USAID and U.S. Department of Agriculture (USDA) assistance, the value chain solicited a former USDA expert in meat regulatory standards to help facilitate improvements in health and sanitary standards. MCI also identified transport options and completed cost studies to confirm the feasibility of export to five Asian and two Middle Eastern markets. Lobbying various associations and government agencies, the project worked with industry to streamline government policies and standards related to agricultural export.

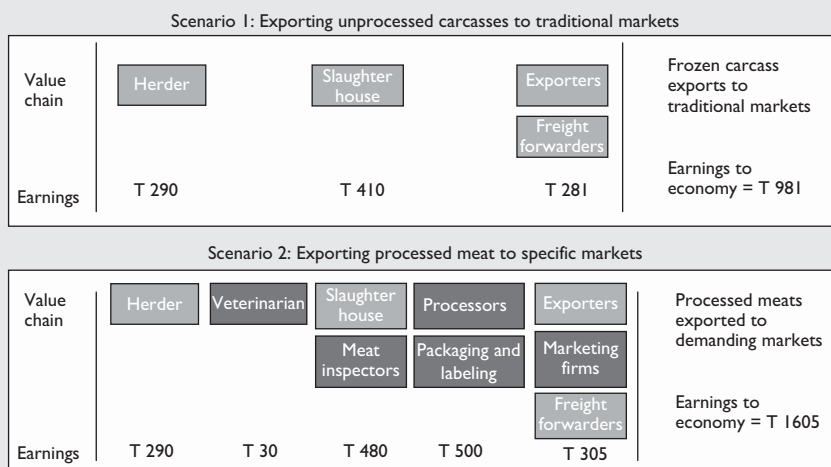
In figure 1, both the traditional and a new “processed” meat export value chain are detailed. In this figure, the processed meat export channel represents the opportunity to add value by incorporating additional operations within the value chain. The “Value Chain Intervention” arrows represent opportunities identified for intervening in the Mongolian meat industry to deepen the value chain.

Figure 1 Mongolian Meat Export Value Chains



Source: J. E. Austin Associates, Inc.

Figure 2 Deepening the Value Chain under Two Scenarios



Source: Nathan Associates, Inc., and J. E. Austin Associates, Inc., for USAID.

(Box continues on the following page.)

Box 4.4 Upgrading the Value Chain—Mongolian Meat Industry (*continued*)

Figure 2 quantifies the value that can be added by deepening the value chain. In this instance, the addition of veterinary services, meat inspection, processing,

packaging, labeling, and marketing operations to the Mongolian meat value chain provides gains of nearly 40 percent in earnings from the meat industry.

Source: Michael Gorman, J. E. Austin Associates, Inc.

^a The Mongolian Competitiveness Initiative was implemented by the consulting firms Nathan Associates and J. E. Austin Associates, Inc.

Box 4.5 Deepening the Value Chain: Glass Jar Production in Armenia

Armenian agricultural products include grain crops, vegetables, and fruits. The latter two are mainly exported in processed form; vegetables are most often canned, while the fruits are processed into juices, jellies, jams, compotes, leathers, and fruit fillers, which make up the majority of the produce packed in cans and jars. The lack of availability of proper quality screw-top jars and the need to import them from Europe raises costs for this type of processor/exporter. (Armenia also has important wine and brandy industries that require glass bottles.)

In 2003, Armenia had very restricted glass jar production capabilities. Existing production capacities had few molds, and, therefore, were able to produce only a limited number of standard designs. Armenia's landlocked situation and high transportation costs make the import of glass bottles and jars very expensive, which restricts opportunities for export of Armenian produce.

The fact that quality, locally manufactured screw-top jars were not available was a constraint to adding value. There are four big canners in Armenia and several smaller ones. The quality of Armenian-made glass containers and the ability to customize them (jars for

juice or preserves, for example) are not satisfactory for quality- or image-conscious processors. While critical of the quality of locally made bottles, processors cited price pressure as the reason requiring them to continue to purchase locally. This greatly hampered the ambitions of producers of food and beverage products, who were unable to use Armenian-produced packaging as a differentiating factor.

Recognizing a gap in the glass container market, two companies made major investments in 2004 in glass jar manufacturing to serve the Armenian market.

The bigger investment was by Saranist, which is also trying to penetrate the Georgian market. Saranist established a new, modern glass manufacturing factory, Arm-Glass Company. The second manufacturing investment was by Glass World Company (GWC). GWC has modernized its production line through a US\$30 million investment, importing advanced, high-technology equipment and installations from Western Europe. Both Saranist and GWC have long been established in Armenia—Saranist since 1990 and GWC (formerly Armkhrustal) since 1964.

Source: Michael Gorman, J. E. Austin Associates, Inc., interviews, Web sites.

product competitiveness while also adding value to the product value chain and the local economy.

Vertical integration

Existing firms also frequently identify opportunities to incorporate new technologies or operations into their structures. Recognizing opportunities to add value, achieve efficiencies, or improve quality—for example, by adding operations through

vertical integration (by a value chain or by a firm with the value chain)—enables value chain deepening. In many parts of the world, vertical integration is achieved through acquisition of another firm along the value chain (see also tool 6).

The formation of new organizations, such as farmers associations, service-provider associations, and marketing organizations, also provides opportunities for otherwise fragmented producers or other businesses to combine their resources to add operations to a value chain.

Commercial joint ventures

Sharing the risk of incorporating new operations into the value chain or investing in a new technology is an appropriate measure in some environments. Fresh produce preparation, packaging, and logistics centers are frequently good candidates for a joint venture, for example. In another example, the tea cluster of Sri Lanka worked closely with the University of Moratuwa to jointly develop and commercialize color separator technology, which could be used to upgrade the quality of tea supplied to the local Sri Lankan auction. The cluster was able to leverage university resources to develop a new separator at one-fifth the cost of the old separators, which were imported from abroad.

CONCLUSION

Many actions can be taken to increase the competitiveness of and to add value to a product's value chain. These upgrading activities are often achieved in part by deepening the value chain through means such as adding operations to the value chain, vertical integration, bringing operations into a country's value chain, or investing in new technologies. These actions are often facilitated by the opportunities created by FDI, association-provided services, new investment, vertical integration, and public-private partnerships.

Successful value chains add value to and deepen their operations while responding to market conditions to achieve growth and increase profitability.

A STEP-BY-STEP SUMMARY OF TOOL 4: UPGRADING AND DEEPENING THE VALUE CHAIN

- Analyze market demand or value chain operations that can be serviced through upgrading or deepening.
- Review the logistics, technical capacity, and investment needs for upgrading and deepening.
- Attract FDI that will facilitate technology transfer.
- Encourage value chain actors to consider vertical integration. Partners and facilitators in this integration may include intermediate and downstream businesses, and organizations such as farmers associations, service-provider associations, and marketing organizations.
- Identify and develop facilitators for upgrading or deepening. This investment can be supported through sound business services (for example, technical capacities, access to skills, access to finance) and by good relationships and familiarity with the needs of the other actors in the value chain.
- Explore commercial opportunities for collaboration between academia and industry.

NOTE

1. "AMAP BDS Knowledge and Practice Task Order Lexicon," USAID.

CASE STUDY 5

Kenyan Green Beans and Other Fresh Vegetable Exports

*Carlton Jones, Michael Gorman, and Martin Webber
J. E. Austin Associates, Inc.*

INTRODUCTION

Possessing a perfect agricultural climate for off-season vegetable production and export to Europe, Kenya has been providing European tables with vegetables for nearly 50 years. Kenya's success has been due to market segmentation, servicing niche markets, and investing in marketing. The industry has constantly refocused its efforts on exporting higher unit-priced products. Products not fitting the profile have been dropped, and the industry has also expanded into products of greater value such as pre-packed and mixed vegetable packs. For example, mixed vegetable packs command a price of US\$8.90 per kilogram (kg) versus extra fine beans at US\$4.14/kg., fine beans at US\$3.30/kg., and Asian vegetables at around US\$2.00/kg.

TOOL: ADDING VALUE THROUGH ADDED OPERATIONS

“Deepening the value chain” refers to opportunities to add or capture more value within a particular product or industry's value chain by adding processes. Deepening can be achieved by recognizing gaps in the value chain or facilitating new linkages between value chain actors. These opportunities can be achieved through by various actions, such as adding operations to capture market demand and value, upgrading the value chain, reorienting the chain to new market opportunities, integrating different aspects of the

chain, promoting specialization among chain participants, and increasing chain cost efficiencies.

BACKGROUND: KENYAN GREEN BEANS

Kenya has been exporting vegetables¹ to the United Kingdom since the 1950s. Reasons for Kenyan success have varied with the changing market forces of the highly competitive UK and European markets. Kenya's original success in exporting vegetables was based on its climatic and geographic competitive advantage. Producing temperate products year round and being well served by northbound air-freight (thanks to the Kenyan tourism market) proved lucrative for Kenyan vegetable exporters. Increasingly, Kenyan success has been due to market segmentation, investing in certification schemes, adding value to products through sophisticated packaging, servicing niche markets, and investing in marketing.

Over the years, due to effective public-private dialogue, the Kenyan government has been receptive to implementing regulatory changes, investing in education, and improving infrastructure, which have increased the competitiveness of the industry. For example, the Horticulture Crops Development Authority (HCDA) of Kenya was initially directly involved in the trading of vegetables but eventually switched to a more facilitative function; it now focuses solely on certification schemes.

Figure 4.20 Map of Kenya



Source: World Bank.

Timeline of Horticultural Development in Kenya

- 1957 First fresh produce to United Kingdom by air
- 1960s Duty-free access to UK market
- 1960s Investment in private farms around Lake Naivasha
- 1967 Horticulture Crops Development Authority (HCDA)
- 1970s Egerton College begins to offer degrees in horticulture
- 1975 Fresh Produce Exporters Association of Kenya formed
- 1980s HCDA passes EU trade enquiries to exporters
- 1987 Exports double in five years
- 1999 New fresh produce terminal built at Nairobi Airport

Similarly, restrictive policies regarding the sale of fresh pineapples in the 1970s and importation of planting materials in the 1980s have now been lifted as a result of close consultation with the private sector. Throughout the 1970s and 1980s, the majority of Kenyan vegetables imported into the European Community were handled by firms that serviced wholesale markets and small or medium retail outlets. In the 1980s, Kenyan exports doubled in five years due to a differential foreign exchange rate for horticultural exports, which the government set below average prices, providing further incentive for exporters to invest in the industry.

By the late 1990s, due to lobbying efforts of the Fresh Producer Exporters Association of Kenya (FPEAK), the Kenyan government partnered with the private sector to expand the Fresh Produce Terminal at the Nairobi airport, thus improving the competitiveness of fresh vegetable exports. Then, throughout the 1990s, large supermarkets began to dominate the European grocery sector, in part, by featuring signature “fresh produce” sections. As they did so, these firms increased the market demand for higher quality, more variety, and price-competitive fresh produce. To meet demand, many firms decided to vertically integrate their retail and wholesale operations, thus concentrating their power in the market and making price competition and product diversification major market forces.

In the 2000s, as the power of the supermarkets continued to drive the market, many supermarkets began to pursue market segmentation and branding strategies, which

increased the demand for higher quality standards, different varieties, and organic or “safer”² produce. A number of exporters have invested heavily in growing their own high-quality, certified vegetables to take advantage of the increased market opportunities for high-quality produce. The effect of these trends has been a much shorter supply chain, a greater degree of vertical integration, fewer active players, and production and exporting on a much grander scale. By the early 2000s, seven of the largest food retailing chains in Europe accounted for 76 percent of fresh fruit and vegetable sales and 70 to 90 percent of fresh produce imports from Africa (FAOSTAT data).

As of 2004, the total Kenyan vegetable export trade was worth US\$139 million, and the country ranked second in Africa in exporting fresh vegetables. The industry employs 45,000 to 60,000 people, of whom an estimated 60 percent are women, in commercial farms, processing, and logistics operations; another 7,000 are smallholders. Employees typically earn just under US\$2 per day, while smallholders are reportedly able to earn the equivalent of US\$7 per day.

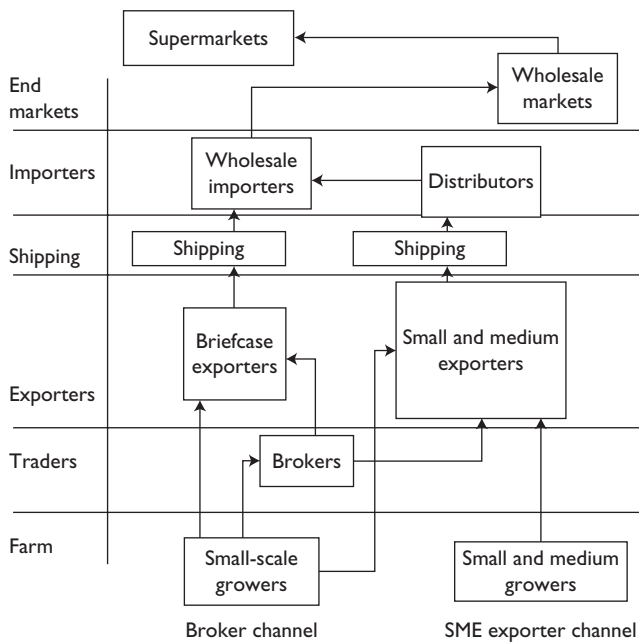
THE VALUE CHAIN

In Kenya, green beans have traditionally been the most popular cash crop among smallholders due to their short growing period, which facilitates a more consistent cash income (Okado 1999). Farmers will typically plant as much as they can sell, and those with contracts or a firm commitment from an exporter may devote 100 percent of their

land to the cultivation of green beans. Green bean monoculture cultivation can yield up to four harvests per year if accompanied by application of chemical fertilizers. The two main challenges faced by smallholders are both brought by the rainy season: a higher disease incidence in the crop and poor accessibility to areas with bad roads, which prevents regular collection by exporters.

The value chain graphic (figure 4.21) illustrates the smallholder “broker” and “small to medium exporter” market channels. The broker channel is composed of approximately 20,000–50,000 microenterprises (mostly

Figure 4.21 Kenyan Green Bean Value Chain



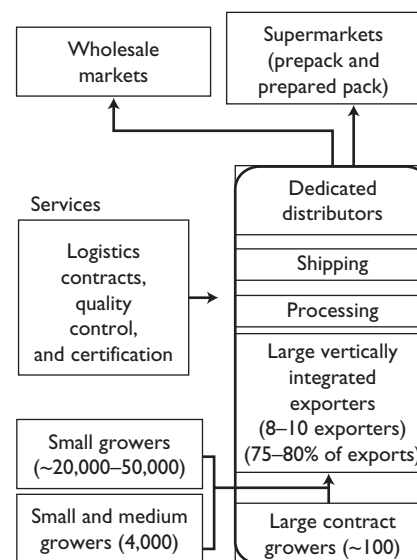
Source: J. E. Austin Associates, Inc.

households) who sell to SME exporters (SMEX) or brokers. The value chain can be characterized by its low levels of information sharing with inaccurate records of chemical usage during cultivation that denies it access to the European market. In the SMEX value chain, approximately 15–20 exporters may contract or have close working relations with their green bean suppliers (nearly 4,000 SME farmers, small outgrowers, and farmer associations). The exporters typically provide inputs to ensure the quality and quantity of products. Smallholders and small and medium producers have been increasingly pushed out of the cultivation of green beans due to market requirements and conditions.

The present market conditions in the EU supermarket sector have influenced a shift in the Kenyan green bean industry to more integrated value chains best represented by larger integrated exporters. The value chain for large integrated exporters (figure 4.22) is characterized by exporters having strong links to end-markets and producers through contractual agreements and ownership. Supply chain management is more efficient due to information sharing within the integrated value chain that eliminates costly demand shortages or oversupply. Products are traced from their origin and production practices are controlled to ensure quality and certification schemes. Increasingly, the value in these relationships is garnered from investments made in value-added operations such as packaging, labeling, certification, and product diversification.

These value-added results are clearly represented in the labor statistics for the integrated large exporter value chain. Approximately 7,000 smallholders are involved in fresh vegetable export, compared to 40,000–60,000 in the processing industry at packhouses, or as farm laborers. For example, Homegrown is Kenya’s largest horticultural exporter and is an example of a highly integrated company. Ninety percent of Homegrown’s crops are grown on its own farms, where it controls the storage, cooling, and logistics from the field to the packing station; it has a joint venture with an airfreight company and a dedicated importer in the United Kingdom. Homegrown works with about 600 smallholders and employs nearly 8,000 seasonal employees for its processing

Figure 4.22 Integrated Export Value Chain



Source: J. E. Austin Associates, Inc. (2005). Analysis adapted from Irwin, Grant, Parker, and Morgan (2005).

operations. Homegrown has also recently completed a factory for prepared salads, providing the capability to pick, prepare, fully label, and transport the salads to supermarket shelves within 48 hours.

Homegrown's recent investments in product development are indicative of the value drivers for the entire fresh vegetable export industry. Driving this accelerated value growth in fresh vegetables has been the emergence of semiprocessed products that meet stringent European standards and certifications. This growth in exports consists of a broad range of products produced under very strict hygienic conditions. In Kenya, the increase in value-added processing to produce "high-care" products such as salads, prepared vegetables, and stir-fry mixes has increased export values for fresh vegetables by 250 percent (Jaffee 2003).

CONCLUSION

The Kenyan fresh vegetable export industry has grown enormously in size and value added, in large part by

implementing new processes and operations. These have been initiated by private business in response to evolving market trends, recognized opportunities, and value chain pressures. The public sector has been an active partner in this growth. Further opportunities exist to increase the competitiveness of the Kenyan fresh vegetable export industry through value chain deepening, as well as through other approaches (for example, increasing the technical capacities and market understanding of serving growing markets beyond Europe, extending the exporting season, and reducing costs and losses through infrastructure) (TechnoServe 2004). The realization of each enhanced process will, in turn, provide opportunity for added services within the value chain.

NOTES

1. NEPAD TechnoServe case study.
2. "Safer" refers to produce with limited levels of chemical residue.

Identifying Business Models for Replication

By analyzing value chains, participants can often identify intermediation opportunities that offer increased efficiency, economies of scale, transaction cost reduction, or more value added in the chain. Entrepreneurs and businesses may be the first to identify and act on them, or government and development partners (and their consultants/practitioners) may be the ones to promote such opportunities. The defining characteristic in the context of this tool is that the opportunities offer the possibility of replication within the value chain.

The benefits of identifying and promoting intermediation opportunities go beyond adding value and upgrading the value chain (with the resulting net economic benefit in jobs, wages, and incomes). More than these, use of this tool in countries with a particularly weak private sector and lack of an entrepreneurial culture amounts to investing in the promotion of entrepreneurship. Additionally, as individual entrepreneurs improve on the basic business model, they often generate their own innovations.

Replicable business models can be recognized through a variety of mechanisms and experiences. For example, opportunity can be identified through the simple need to upgrade quality (of both raw materials and processed product) through learning business models that have worked in other regions or countries in related types of value chains. Opportunity may also appear through the application of analytical tools described elsewhere in this Guide, such as identifying needed services, benchmarking and gap analysis, and market analysis. Box 4.6 presents an example of a replicable business model.

The Pakistan Dairy industry also provides a useful illustration (see box 4.7) of a replicable model. Value chain analysis in Pakistan revealed that in several areas near urban centers, 45 percent of milk produced in the country never reached market because, in most areas, only the morning milk (55 percent of potential output) was collected. The rest (evening milk) went to waste. Further, domestic demand

was growing at twice the rate of supply. This analysis led to the identification of an intermediation opportunity that could be exploited by entrepreneurs—namely, investments in simple refrigeration centers for the purchase and collection of milk which allowed an increase in the quality and supply of milk, as well as providing farmers an outlet for selling it. This business model is being widely replicated and by April 2008, less than 30 months after efforts began, about 1,000 collection centers were operating.

Once a business model suitable for replication is identified, value chain participants and development practitioners can support and facilitate value chain stakeholders in successfully implementing a pilot enterprise. Once proven, stakeholders can encourage the replication through promotional campaigns, business associations, technical assistance, and other available means. In the Pakistan Dairy example, a public-private institution to promote the dairy sector is facilitating the replication of the collection centers by promoting the business opportunity, soliciting applications for discounted farm cooling tanks (which the institution negotiated with the provider), and identifying commercially appropriate sites for centers.

A STEP-BY-STEP SUMMARY OF TOOL 5: IDENTIFYING BUSINESS MODELS FOR REPLICATION

- Identify intermediation opportunities (business models) to increase efficiency and value added suitable for replication. Many of the tools in this Guide are helpful in this respect.
- Support and facilitate value chain stakeholders to implement a pilot enterprise.
- When an approach is successfully proven, encourage its replication through promotional campaigns, business associations, technical assistance, and other available means.

Box 4.6 Replicable Business Models—Rwandan Coffee Washing Stations

Rwandan coffee was a principal source of foreign exchange for the country until the 1990s. But coffee's contribution to Rwanda's foreign exchange earnings declined through the mid- and late 1990s. Rwandan coffee production never recovered to 1992 production volumes (39,000 mt) because of inefficiencies in the coffee value chain. The country's disparate nature of coffee farming, the poor health of its coffee trees, the lack of wet-milling stations, and low incentives for reinvestment all contributed to inefficiency. Growers were not offered higher prices for better quality beans, so they spent little time grading and separating their bean harvests. Low coffee yields and poor price points influenced farmers to focus on other crops with higher margins, further diminishing coffee's competitiveness in world markets.

Despite the constraints that led to low-quality and low-quantity commodity grade coffee, the government of Rwanda (GoR) and donor partners believed that Rwanda possessed the capacity, environmental conditions, and political will to improve its coffee position in world markets. What Rwanda lacked was technical capacity, market information, and a coherent strategy. Two USAID-funded projects, Partnership to Enhance Agriculture in Rwanda through Linkages (PEARL), and Assistance a la Dynamisation de Agribusiness au Rwanda (ADAR), helped to provide the strategy and technical capacity that assisted in Rwanda's coffee quality and quantity improvements. The projects sought to improve Rwandan coffee by, among other actions, facilitating the opening and equipping of coffee-washing stations in Rwanda's top 50 producing districts. These washing stations filled a crucial gap in Rwanda's production cycle and allowed the coffee's quality to improve.

Source: Carlton Jones, J. E. Austin Associates, Inc.

With an annual budget of almost US\$700,000 dedicated to supporting the coffee sector, ADAR worked directly with private investors to open 16 washing stations in 2005. Direct assistance included feasibility studies, business plans, construction planning and supervision, and training in coffee processing. Similarly, PEARL worked with rural cooperatives to assist in cooperative formation, business planning, washing station construction, processing, cupping, marketing, and Fair Trade certification. In both projects, the assistance provided the platform for a replicable business model to be adopted for numerous future washing station openings. In the model, investment opportunities were created via a loan guarantee program that allowed the private investors to construct collection/washing stations and process coffee beans for improved quality. The model was replicated each time a private sector investor sought to open a washing station. The investor took out a loan from the guarantee fund and, along with technical assistance from the projects, began processing coffee for export. By November 2005, 10 of the 11 loans provided by the program, totaling US\$1.6 million, went to private sector operators.

As of January 2007, the private sector was continuing to invest in coffee washing stations in Rwanda. The replicable business model provided by the projects has helped to establish 80 functioning stations throughout the country and 120 washing stations by the end of 2008. The washing stations provide an important intermediate role in the coffee value chain and have also proven to be platforms for entrepreneurship and entrepreneurial innovation. Ultimately, Rwanda hopes to have its entire coffee production fully washed by 2010.

Box 4.7 Identifying and Replicating Business Models within the Value Chain—Dairy Pakistan

Background

An estimated 30–35 million farmers in Pakistan are engaged in raising livestock, which generate 30–40 percent of their income. Ninety-seven percent of fresh milk is either consumed locally or distributed through

informal trading routes. The farmers' dairy production has often not reached domestic markets, despite the fact that the market for dairy is growing twice as fast as the supply.

(Box continues on the following page.)

Dairy Farmers Want to Invest—But Need to Manage Risk

The dairy value chains in Punjab Province and in the area around Karachi recognized an opportunity to improve the quality and increase the quantity of the milk that they were producing and marketing. The chain participants knew that they had unmet demand because they were able to sell everything they could supply. The industry's strategic working group (SWOG) meetings identified a huge market opportunity that could entice entrepreneurs to invest time and money into meeting this growing need. In fact, the dairy sector was missing out on selling its second (evening) milking, which is 45 percent of the milk produced on the farm.

The most significant issues for the value chain were that 97 percent of the trading was done on an informal basis, and there was no cold chain to handle the storage of a second milking. Of the milk that farmers did sell, 15–19 percent was wasted en route to market, again due to spoilage because of lack of chilling.

Although these facts appeared to present investment opportunity, it can be difficult to create the conditions within the value chain that motivate businesses to invest and that encourage the value chain to upgrade its practices. Buying new equipment and changing their practices means both costs and risks for farmers and intermediaries. These barriers were removed by a facilitated strategic planning process that identified a workable business model. The planning process developed sufficient trust among the participants to create a strong win-win solution and to generate commitment to the model, with risk sharing and up-front financing from Dairy Pakistan, the public-private institution that was designed by the SWOG project.

Source: Mike Ducker with Marcos Arocha and Martin Webber, J. E. Austin Associates, Inc.

The Replicable Business Model (Collection Centers/Cooling Stations)

The core of the business model was to encourage entrepreneurs to invest in and to manage collection centers/cooling stations. The entrepreneur puts up 20 percent of the investment and receives a no-interest loan for the remainder, which was subsidized by the government, managed by Dairy Pakistan, and distributed by a consortium of banks. Dairy Pakistan then provided technical training on how to operate the cooling station. The large dairy processors/distributors committed to regular, predictable milk collection.

Communicating the Case for Investment

The SWOG presented the market opportunity to potential entrepreneurs. Dairy Pakistan and the several banks sent out formal invitations for entrepreneurs to submit applications to Dairy Pakistan for investment. The project and Dairy Pakistan supported entrepreneurs with technical assistance in learning to operate the tanks, again reducing the risk of investment. As of mid-2006, the project was facilitating 2,150 collection tanks and had received 3,050 applications. By May 2008, approximately 1,000 additional collection tanks were in place.

Summary and Results

The supply of chilled milk has increased by an estimated 500,000 liters per day. About 7,000 direct jobs have been created in collection and processing. Based on the 2006 results, the entrepreneurs who own and operate the centers will earn an estimated US\$63 million (net present value). More than 30,000 farmers now have access to market and are able to sell at higher prices. Additional benefits are the increased profits further down the market chain. The private sector has invested more than \$7 million in the program.

CASE STUDY 6

Identifying and Implementing Replicable Business Models—Mozambican Cashews

*Carlton Jones and Martin Webber
J. E. Austin Associates, Inc.*

INTRODUCTION

Following a tumultuous round of cashew sector reforms in Mozambique, the government of Mozambique and USAID commissioned a cashew subsector analysis¹ seeking innovative means to revitalize the industry while maximizing benefits to small growers. The analysis stressed the importance of replicable business models for value-added processing of cashews.

Rejuvenating the Mozambican cashew sector requires innovative approaches to bring value back to the actors in the value chain. This case demonstrates how small and medium hand-processing plants were identified as replicable businesses supporting that rejuvenation. Mozambique has not yet returned to its former cashew dominance, but those in the sector have learned that, through replicable business models, value chain actions can rebuild the private firms that bolster the sector.

POINTS TO CONSIDER

When reviewing this case consider the following questions:

- What led to the need to identify replicable business models?
- When is it appropriate to consider implementing such a model?
- What role do local entrepreneurs play in implementation?

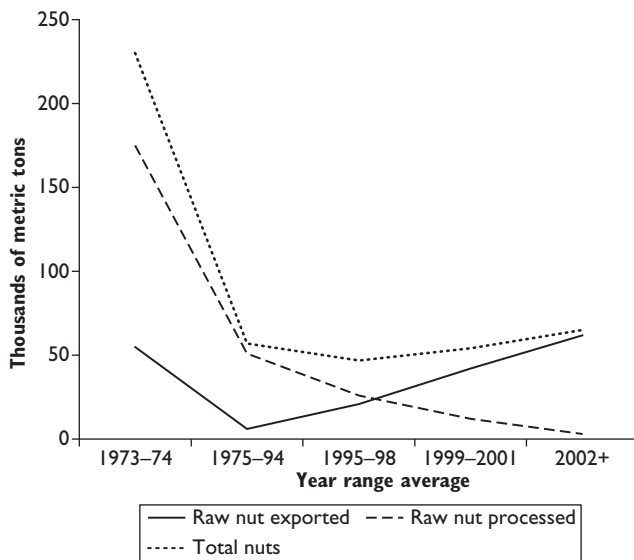
BACKGROUND

From the 1920s until the mid-1970s, Mozambique was considered the world's leading cashew producer (240,000 mt at its peak in 1973),² with considerable domestic capacity in processing quality cashews. By the early 1980s, Mozambique had over a dozen processing factories and was the first African country to process cashews on an industrial scale, rather than through the traditional method of hand-processing by SMEs.

However, by the end of the 1970s, other global producers (India and Brazil) began to threaten Mozambique's cashew dominance.³ In response, in 1978, the government of Mozambique banned the export of raw nuts. The rationale at the time was to stimulate domestic processing and maintain global processing dominance. But after a variety of events, including a civil war from 1982–1992 and the adoption of policies that fixed raw nut prices, production continued to decline (see figure 4.23) (down to 22,106 mt in 1990; Deloitte Touche [1997]).

In 1992, the government of Mozambique implemented many reforms in the hope of regaining past cashew processing performance. The raw nut export ban was lifted, previously state-owned factories were privatized and sold to local entrepreneurs, and there was a push to invest heavily in new large-scale mechanical processing facilities. However, the government also introduced high taxes on raw nut exports (18–22 percent), again with the goal of pushing the entire industry toward domestic processing. The reforms failed, and the sector essentially collapsed by 1994.

Figure 4.23 Mozambican Cashew Nut Exports since the 1970s



Source: FAOSTAT data.

In 1995, the government of Mozambique liberalized the cashew sector, in part as a condition for World Bank loans. The reduction of export tariffs (from 18–22 percent to 20 percent, then again to 14 percent) slightly increased prices at the farm gates, but, some argue (McMillan, Welch, and Rodrik 2003), also led to the closing of most processing factories. Mozambican processors found it too difficult to compete with traders selling raw nuts to India (where the industry is reportedly subsidized). Additionally, because of low margins, processors did not reinvest or maintain their plants; equipment began to break down, and improper and improperly maintained equipment caused a high level of cashew kernel breakage.

With most processing factories closed, and 7,000 employees out of work, Mozambique’s cashew sector suffered another relapse. By the late 1990s, instead of having a vibrant value-added cashew sector, Mozambique exported most of its nuts raw to India for processing and value added. In 2001, local businesses pressured the government to reinstate the export tax on raw nuts.

Concerned about the sector, USAID commissioned a cashew subsector analysis seeking innovative means to revitalize the industry while maximizing benefits to small growers. The study results suggested that small and medium processors could bring value back to Mozambique by processing some of the raw nuts that otherwise would be exported to India (see figure 4.24). Thus, a program was

implemented with the goal of establishing a profitable SME processor in the northern province of Nampula that would serve as the pilot. If successful, the processor could serve as the model for other, similar enterprises.

THE LEAD FIRM MODEL

A local businessman, Antonio Miranda, possessed many of the characteristics hoped for in an entrepreneur. He was innovative, thrifty, socially conscious, and had vision. With the support of a technical assistance provider (TechnoServe 2003), a small- to medium-scale hand processor, Miranda Caju, Ltd., was established in 2001 on the grounds of a previously closed facility. The building was reconstructed using local labor, which provided jobs to the surrounding community. Mr. Miranda was able to raise funds for seed and working capital (US\$47,000) in the form of a guarantee fund from INCAJU, Mozambique’s National Cashew Institute, and he installed new equipment for whole nut production.

In hand processing, each nut is steamed, shelled, dried, and peeled by hand, then pregraded to ensure a higher percentage of whole kernels. After kernels are vacuum packed, they are trucked to exporters in the port of Nacala. The plant had the capacity to employ 460 workers, purchase 12,500 mt of raw cashews from small growers, and process 1,250 mt of cashews that rivaled India and Brazil in quality. When Mr. Miranda announced his intention to hire locally, 1,000 candidates applied to fill the 70 original positions.

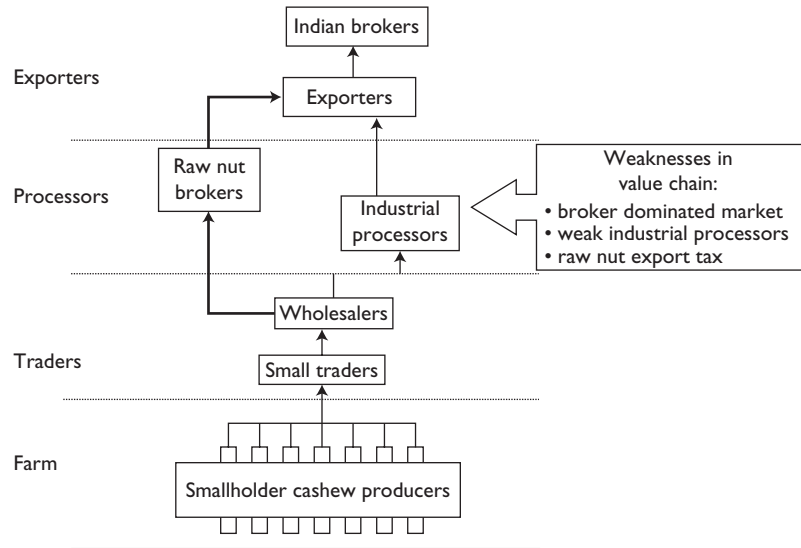
Miranda Caju experienced and overcame many challenges. Within months, the processing plant was selling to a major buyer in Holland. Not only was the plant making a profit, but Miranda Caju workers earned, on average, US\$300 per year versus the average of US\$8 per year in cash income earned by subsistence farmers.

Miranda Caju purchases raw nuts from several sources, including recently formed farmer associations and small growers. Before the plant’s entrance into the market, most small growers sold to traders, who then sourced to wholesalers. Miranda Caju was able to locate small growers with the capacity to improve their growing methods to provide better yields and, thus, higher quality raw nuts to the Miranda plant. Miranda Caju’s entrance into the market benefited small growers by growing their incomes an average of 20 percent.

REPLICATING THE MODEL

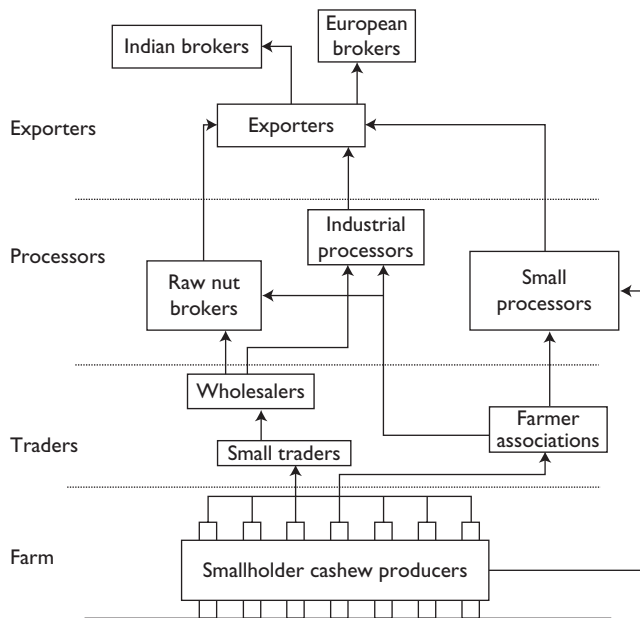
Recognizing the potential for additional small and medium processors to enter the cashew sector, TechnoServe arranged

Figure 4.24 Weaknesses in the Mozambican Cashew Domestic Value Chain



Source: J. E. Austin Associates, Inc. (2007).

Figure 4.25 Mozambican Cashew Domestic Value Chain with Small Processors



Source: J. E. Austin Associates, Inc. (2007).

for other entrepreneurs to be trained on the Miranda Caju premises to learn first-hand how to run a cashew plant. Mr. Miranda was an instrumental trainer, providing day-to-day experiences and lessons to the entrepreneurs learning the business. His ability to share lessons learned on a variety of topics like operations, cost savings, plant location, financ-

ing, hiring practices, and sourcing raw nuts from growers provided a sound foundation for other entrepreneurs to launch their own processing facilities in 2004. Also in 2004, Miranda Caju opened a second operating plant to meet the growing demand for processed cashews. Miranda Caju served as the model for five additional processing plants to open between 2002 and 2004, with a total processing capacity of 8,750 mt (see table 4.10).

CONCLUSION: REBIRTH OF A SECTOR

Since 2001, 12 processors have now opened under the profitable, replicable business model demonstrated by Miranda Caju (see figure 4.25). They vary in their stages of development and success, with Miranda Caju continuing to lead the small to medium cashew processor market. Of those businesses, Miranda Caju continues to grow and innovate. The firm also hopes to increase the percentage of raw nuts it purchases from farmer associations (currently 40 percent), and it now provides on-farm technical assistance to its small growers in the form of help with seedling replanting, quality control, and improved yields.

The entire value chain has benefited from these interventions, not only in increased volume of quality cashew processing and exports, but also from realizing that profitable manual processing businesses can be created and can improve quality, create jobs, and rebuild the Mozambican cashew brand. Access to investment and working capital has improved, initially through INCAJU's Guarantee Fund, and later by other guarantee funds managed by the Ministry of

Table 4.10 Mozambican Cashew Processing Operations

Name	Location	Started	Processing capacity (mt)	Employees	Small-grower purchases
Miranda Caju	Namige, Mogincual	2001–2	1,250	460	12,500
Africaju Lda	Namialo, Meconta	2002–3	1,500	160	10,000
IPCCM	Murrupula Sede	2002–3	1,000	84	10,000
Miranda Caju	Angoche Sede	2003–4	1,500	230	5,000
Alexim Lda	Iuluti, Mogovolas	2003–4	1,000	63	1,200
Moma Caju Lda	Mecone, Moma	2003–4	1,000	63	1,200
Macia Caju	Macia, Macia	2003–4	1,500	70	1,500

Source: Reprinted from TechnoServe (2004).

Industry and Commerce. Since 2001, these processors have had annual sales over US\$5.1 million and have employed over 3,000 workers. Smallholders are also benefiting through the increased prices they receive at the farm gate.

Mozambique’s cashew industry is examined further as a case accompanying Tool 7, Horizontal Collaboration—Creating and Taking Advantage of Economies of Scale.

NOTES

1. The subsector analysis was conducted by U.S.-based NGO TechnoServe.
2. TechnoServe.
3. In 1978, India was the top world producer, at 165,323 mt. Brazil was second with 77,000 mt, and Mozambique was fourth with 61,000 mt produced (FAOSTAT).

Capturing Value Through Forward and Backward Integration

At the firm level, vertical integration means creating forward and/or backward linkages. A firm becomes more vertically integrated when it takes on more of the activities that take place within its value chain. Vertical integration makes sense if, for example, the business is seeking to ensure supply or otherwise control inputs, capture more value, achieve economies of scale, or ensure access to information. A value chain, by consequence, becomes more integrated through the decisions of firm-level actors.

Vertical integration also takes place at the value chain level when more stages are brought into the country's value chains. This means that a nation's businesses are taking on more of the activities within the global value chain, which adds value, provides more market contact and information, creates employment, and more. Value chain members must decide whether it makes sense for them to integrate—a calculation that includes profit, risk, investor wishes, and other factors. Integration can also mean adding more functions to the value chain and not necessarily incorporating them from other countries. This integration may involve joint commitments or even joint investments.

Companies and enterprises have always made conscious decisions about whether it makes sense to vertically integrate. At the value chain level, one can even think that, before there was international trade, every industry was vertically integrated with a region or nation. This is a tool that examines whether there are gains to taking on more of the value chain's functions.

The value chain understood at the firm level can be very simply illustrated (and, of course, can also be shown with much greater detail). In figure 4.26, each stage represents a link in the value chain. In terms of integration, a firm operating in the production stage can assess its distribution channels and decide that it can transport its own goods more cheaply and efficiently than by using another firm. This firm has then made the decision to integrate forward and take on its value chain's distribution function.

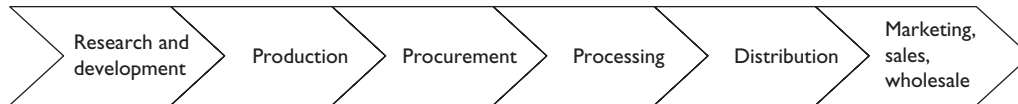
The firm could also make decisions regarding its supply of inputs. At the production stage, a firm might recognize that its suppliers are not producing inputs that are adequate for use at the production stage. Rather than share information and work with one or a group of suppliers, the firm might simply integrate backward and develop its own ability to provide the inputs it needs.

VERTICAL INTEGRATION FROM THE NATIONAL VALUE CHAIN PERSPECTIVE

For most products in most developing countries, relatively simple value chains focus on getting a product (typically a largely undifferentiated commodity) to market (whether that market is domestic or international). From this perspective, the challenges are to achieve low transaction costs, push volumes of product to the market (and sell them), and reduce losses from spoilage, waste, or theft. From the perspective of the in-country value chain participants, such value chains tend to be supply driven and production driven (a situation that poses its own challenges, if the producer's interests are not in line with market requirements). Also, the recipe for business development from this perspective involves reducing production and logistic barriers and removing taxes and levies (or imposing them to protect against cheaper competition or foreign competitors who are willing to buy raw materials at slightly higher prices). A "market information gate" that prevents domestic producers from understanding the export market is often present, thereby presenting both a challenge and an opportunity for forward integration (see figure 4.27).¹

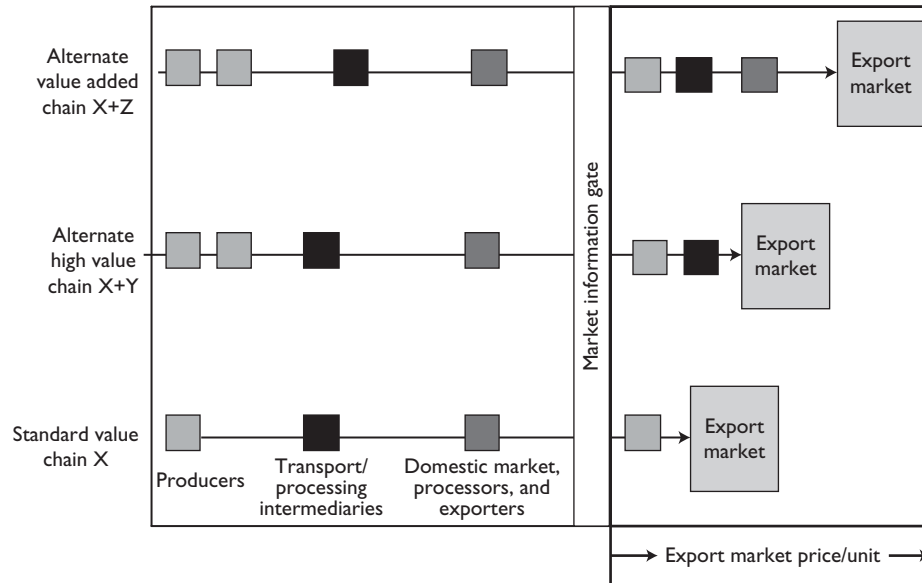
One typical competitiveness goal is to increase quality and service within the value chain and to offer customers a desirable, higher-value product or service (shown in figure 4.28 as X+Y). This, if achieved, can offer huge increases in productivity and make the value chain and the country as a whole more competitive (see Tool 4, Upgrading and Deepening the Value Chain).

Figure 4.26 Firm Value Chain



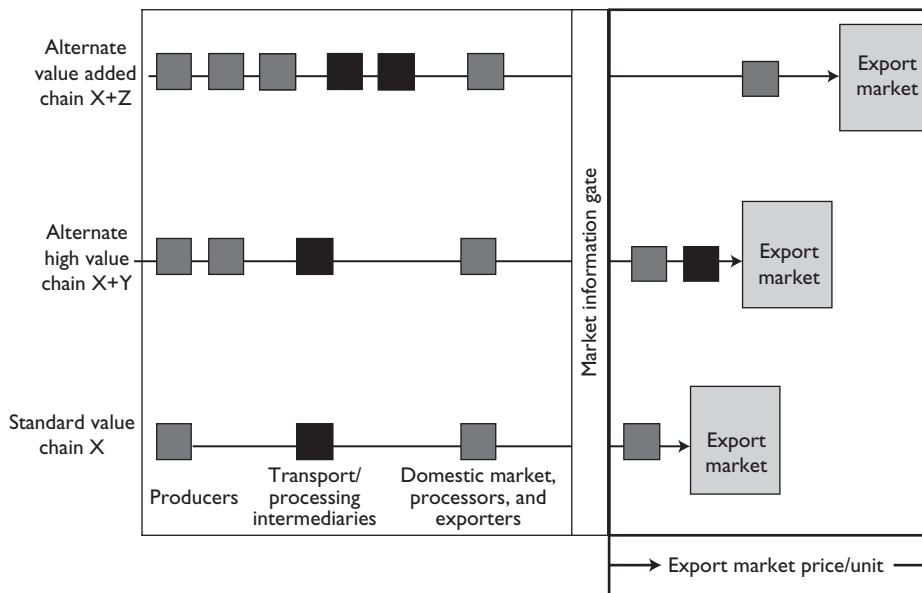
Source: Adapted from Michael Porter.

Figure 4.27 Improving Value Chains (before Value Added)



Source: J. E. Austin Associates, Inc.

Figure 4.28 Improving Value Chains (with Value Added)



Source: J. E. Austin Associates, Inc.

An even more rewarding goal is to add value along the value chain (shown as X+Z).² This can be fairly simple, for example, coffee washing, packaging versus bulk tea, filleted fish, cut and packaged flowers delivered directly to retail outlets, or furniture or furniture components. It is analogous to the Mongolian meat production example described earlier in tool 4, figures 4.20 and 4.21. These value additions contrast with, for example, selling unprocessed logs or lumber or selling unprocessed vegetables for delivery to markets. Value addition can be accomplished by introducing new enterprises into the value chain (thereby deepening it), or by having existing firms take on new activities (vertical integration). Adding value might also mean creating domestic operations that had previously been performed abroad. With cut flowers (as in the Ugandan example), this might include assembling bouquets and packaging for display. In many value chains, it might take the form of producing intermediate or final products rather than raw material (for example, rubber gloves rather than crepe rubber, processed or canned fruits rather than fresh or frozen exports, or filleted and packaged meats or fish rather than frozen products).

CONSIDERATIONS FOR INTEGRATION

There are many reasons to think about integration and several considerations that must be kept in mind when thinking about it. First is strategy: it is important to understand the context in which the firm or value chain operates and whether it can become more competitive through integration. Once a firm understands its position in the value chain, it can determine whether there are profitable opportunities for expansion into adjacent links. A similar calculation must be made when a value chain seeks to vertically integrate through collaborative approaches. There are many strategic questions to ask about integration, and these vary depending on which stage the firm occupies in the value chain. Jim Austin's book, *Agroindustrial Project Analysis* (1992), long a touchstone for investors and practitioners, lists important questions to ask in analyzing agricultural projects. Some are related to vertical integration and are relevant mainly to the production stage of the value chain, including:

- Is there competition in procurement among similar agroindustries?
- How much quality control would be gained if the processor integrated backward to assume the production, storage, transport, and handling functions?

- How do improvements in quality control compare with the cost and with the alternatives for quality control?
- Should the producers integrate backward and undertake transport or production, or both?
- Would backward integration lower the costs of raw materials?
- How much will control of quantity, quality, and timing improve with integration?
- How far back should the producers integrate?
- How much additional fixed investment will be required to integrate?
- How much additional working capital is required?
- How might integration reduce the project's flexibility in obtaining sources of raw materials?
- What are the economic and operational risks of a decrease in this flexibility?
- How will integration affect variable and fixed costs?
- How will integration affect the plant's break-even point?
- Is integration politically feasible or socially desirable?

Second are operational considerations. Vertical integration may be necessary if a firm needs to be able to control its supply of inputs. This need for control is especially relevant if the firm needs highly specialized inputs for its products. Also, by controlling its supply, a vertically integrated firm can more easily ensure availability. Although suppliers can often provide inputs at a lower cost, especially if there is competition within that stage, a vertically integrated firm may actually lower its costs by providing its own supply.

Integration must make basic financial sense: a firm or country must evaluate whether value is being generated in adjacent links and whether it can capture enough of that value to make integration profitable. The firm or country should perform a cost-benefit analysis to identify whether the benefits outweigh the costs. Table 4.11 presents a number of reasons to integrate vertically. Boxes 4.8 and 4.9 present two illustrative examples and the topic is considered more deeply in case study 7.

A STEP-BY-STEP SUMMARY OF TOOL 6: CAPTURING VALUE THROUGH FORWARD AND BACKWARD INTEGRATION

- Analyze the current in-country value chain in the context of the global value chain to identify profitable opportunities for expansion into adjacent links.
- Strategically assess current and future value chain addition activities in the context of the desirable objectives associated with vertical integration. Likely objectives include

Created in the 1980s to Support Diversification into Higher-Value Horticulture Products

In the 1980s, Zambia's three largest horticulture exporters created the Zambian Export Growers Association (ZEGA). Zambian exporters saw an opportunity to use the country's considerable natural advantages to produce and export higher-value horticulture products. ZEGA's founders recognized that they needed critical mass to purchase inputs from South Africa and to negotiate duty-free incentives with the Zambian government. ZEGA was established without any donor support, but, as it evolved, it became an important vehicle for donor support.

Grew in the 1990s by Developing Competence in the Freight Business

Perhaps the main benefit of grower cooperation was to secure airfreight. Zambia's airfreight export tonnage was always less than in competing countries such as Kenya and Zimbabwe, so achieving critical mass to secure competitive rates and capacity was difficult.

In the 1990s, some of Zambia's big horticulture growers started to create linkages with flower markets in Holland and large food retailers in the United Kingdom. With these linkages to sophisticated markets, and with perishable products at stake, the Zambian growers realized that getting reliable, affordable airfreight service to Northern Europe would be key to its long-term competitiveness. During the 1980s, Zambia Airways offered subsidized airfreight rates to Europe for the horticulture exporters, but the airline became insolvent in the late 1980s. ZEGA instead negotiated its first freight contract with British Airways, which nonetheless put Zambia at a cost disadvantage compared to other horticulture exporters such as Kenya and South Africa. However, ZEGA members stood firm; even though they could sometimes get cheaper freight rates on passenger planes, they continued to use ZEGA for freight services so it could amass tonnage. Once producers reached a sufficiently large tonnage of horticulture produce, ZEGA was able to negotiate with African freight carriers to achieve cost competitiveness. Over time, ZEGA developed a competence for managing freight firms, and now has at least one airfreight shipment of horticulture products going out a day. ZEGA even sought to break off the freight business into a separate company, although it continued to grow its expertise and service its clients.

Began Cold Storage at the Lusaka International Airport

Because of EurepGAP standards, the horticulture value chain in Zambia needed to have an integrated cold

Source: Carlton Jones and Mike Ducker, J. E. Austin Associates, Inc.

chain from the farmer to the European importer. The large growers invested in refrigerated trucks while ZEGA handled cold storage and logistics at the airport. This created a full, integrated cold chain for floriculture and horticulture export products.

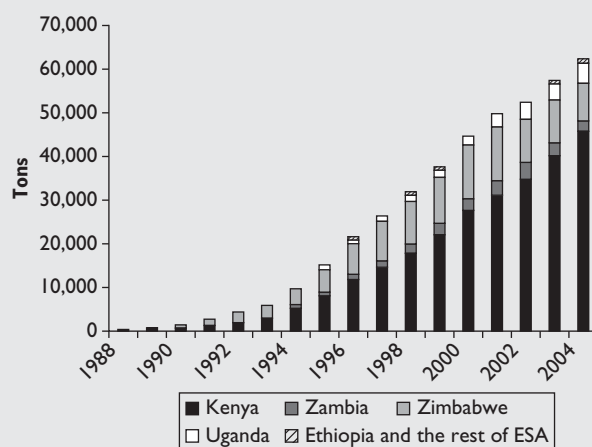
Backward Integration into Procurement of Inputs

ZEGA supported backward integration by buying farm inputs, such as fertilizer, which has provided the industry with two advantages: bulk purchasing power and thus lower input costs for the sector and important working capital because ZEGA sells on account. Because ZEGA controls the important link to air transport, growers have a powerful incentive to influence other growers to pay their debts.

Results

The vertical integration within Zambia's value chain, led by ZEGA, enabled the sector to increase exports of fresh vegetables and cut flowers from US\$6 million in 1994 to over US\$33 million in 2001 and US\$43 million in 2005. This increase in exports was enabled by ZEGA's forward integration into airfreight and backward integration into procurement. ZEGA has filled important gaps within the Zambian value chain and has enabled all value chain participants to benefit from economies of scale. ZEGA has also been a recognized "face" of the industry in dialogues with the Zambian government and the donor community in receiving technical assistance to support Zambia's export growth.

ESA Rose Exports to the European Union



Source: UNCTAD (United Nations Conference on Trade and Development) data, www.unctad.org.

Table 4.11 Some Reasons to Consider Vertical Integration

Reasons	Considerations
Control reasons	<ul style="list-style-type: none"> • Insufficient supply • Inadequate supply • Need for highly specialized inputs • Cost savings
Lack of intermediation	<ul style="list-style-type: none"> • Ineffective communication and flow of information between members • Nonexistent technical/embedded services
Establishment and expansion	<ul style="list-style-type: none"> • Solidify position in value chain • Lower costs through economies of scale • Alter competitive landscape
Capture more value	<ul style="list-style-type: none"> • Opportunities to increase revenues without overstretching resources • Opportunities to undertake more functions without overstretching resources • Opportunities to create value

Source: J. E. Austin Associates, Inc.

Box 4.9 Bulgarian Wine—Integrating Operations to Secure Sourcing of Raw Material

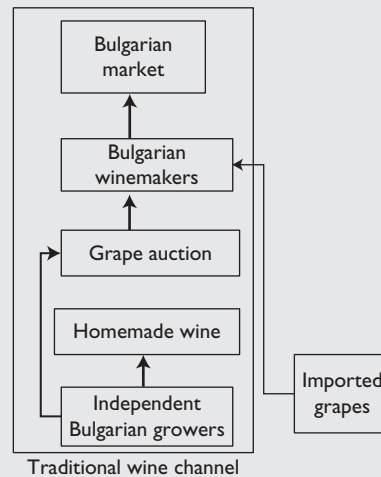
The Bulgarian wine industry is closely linked to Bulgaria’s grape production subsector. The traditional value chain (as represented in figure 1) illustrates how winemakers rely on the grape auction and imports for their grape supply. However, a severe frost and low temperatures in 1997–98 significantly restricted grape production at Bulgarian vineyards. More than 50 percent of vineyard production in northern Bulgaria and 20 percent in southern Bulgaria were lost. Wineries in the north were forced to turn to suppliers from southern Bulgaria and Romania.

This increased competition for grapes throughout Bulgaria caused prices to rise quickly. Consequently, Bulgarian winemakers were forced to pay more for their Bulgarian grapes or to import grapes from neighboring countries with little control over the quality and variety of grapes. The poorly controlled imports negatively affected wine production.

The firm Vinzavod-Assenovgrad (VA)^a is located in a region famous for growing grapes. Prior to 1997–98, VA had never had problems securing grapes from local suppliers for its production cycle.

The grape shortages made the company aware of the need for measures to ensure local supply to maintain quality and varietal differentiation. VA management decided to develop its own vineyards and to create new contract mechanisms to secure grapes from local producers. The company invested in 200 hectares of grape production and has made plans to expand to 350 hectares to secure a reliable and cost-effective supply chain.

Figure 1: Bulgarian Wine Value Chain: Traditional

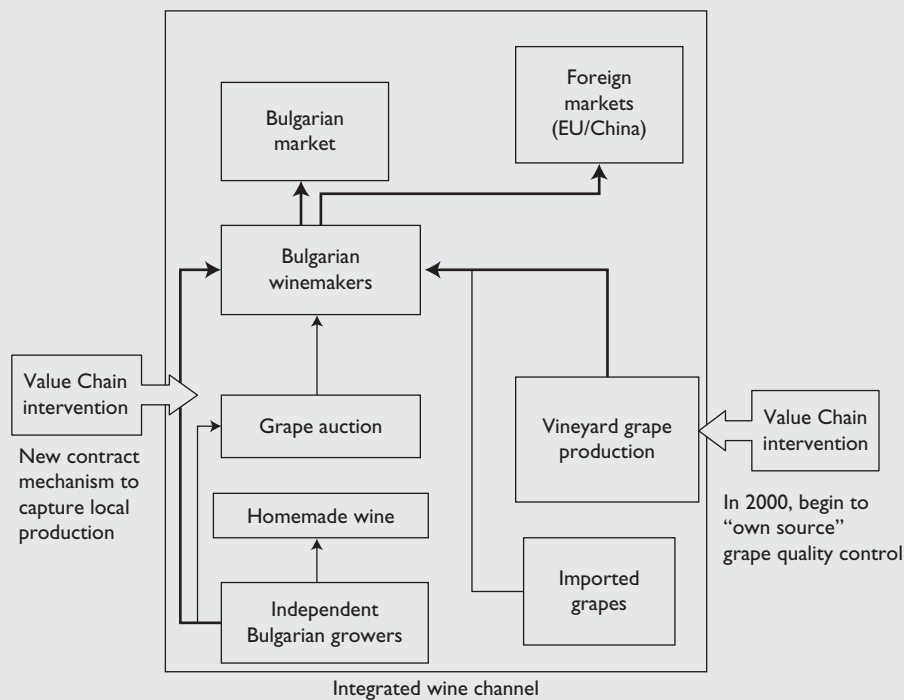


Source: J.E. Austin Associates, Inc.

As shown in figure 2, VA also now secures a portion of its grape supply by offering small vine growers short-term contracts for their grapes and preferential pricing on wine. In the contract’s inaugural year, VA sourced 40,000 kg of raw grapes from local smallholders. However, in subsequent years, VA allowed purchases under the new mechanism to decline, once again relying on the grape auction as the primary avenue for domestic purchases. While the new contract mechanism did not radically restructure VA’s supply chain, it did institutionalize a new fail-safe for securing local production in years of scarcity.

(Box continues on the following page.)

Figure 2: Bulgarian Wine Value Chain: Integrated



Source: Michael Gorman and Martin Webber, J. E. Austin Associates, Inc.
^a VA's corporate Web site: <http://www.mavrud.com/en/index.htm>.

greater control over quantity, quality, and timing of raw materials and reduced transaction costs, among others.

- Analyze operational advantages and disadvantages associated with vertical integration. This may include lower transaction costs, higher fixed costs, complex logistics, and risk.

NOTES

1. Forward integration by domestic producers often means that they need to access more information about the market to produce products that will sell. There are many ways of doing this. In order to gain a foothold in the export market, the exporter should learn as much about the market as possible and communicate that information to suppliers.

Exporters could also pay the producers (and intermediaries, for example, transporters) a premium at produce at certain quality and delivery standards. From the perspective of producers and intermediaries, who also want to sell more, they should do everything possible to learn about the market's (and the exporters') requirements. This sharing of information will add value and help value chain participants produce the right products in sufficient quantity.

2. In reality, different businesses in competitive, market-driven economies generally participate in a variety of value chains—some simple, some offering higher quality, and some offering considerable value addition. Within an economy, businesses make their own choices according to their business model.

CASE STUDY 7

Capturing Value through Integration—The Ghanaian Pineapple Industry and Blue Skies Holdings Ltd.

*Michael Gorman and Martin Webber
J. E. Austin Associates, Inc.*

INTRODUCTION

Vertical integration generally refers to a firm's ownership or control of vertically related activities. The greater the firm's ownership and control over successive stages of the value chain for its products, the greater its degree of vertical integration. In a value chain context, vertical integration can also be achieved between upstream and downstream firms when there is a high level of integrated systems and information sharing.

One case in point is Blue Skies Holdings Ltd., an example of a successful, vertically integrated exporter of pineapple and other processed fruit from Ghana.

THE GHANAIAN PINEAPPLE INDUSTRY

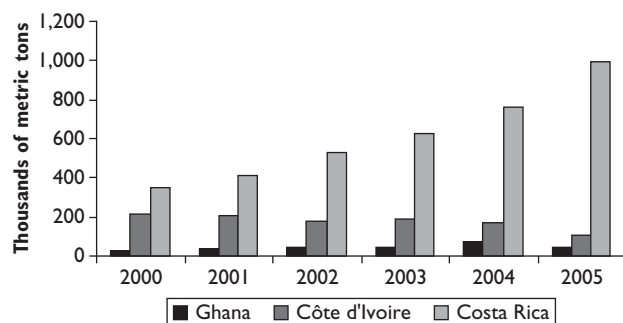
According to the Food and Agriculture Organization of the United Nations (FAO), there are more than 80 countries producing approximately 17 million tons of pineapples. More than 11 million (65 percent) of the 17 million tons grown are destined for export (FAOSTAT). Pineapples are exported in various forms, and nearly 80 percent of pineapples are found on the market in processed form: 48 percent as juice and 30 percent as canned fruits. Thailand, Brazil, the Philippines, and India are the main producing countries. Thailand, the Philippines, and Indonesia account for 80 percent of the canned pineapple industry. Brazil's production is essentially consumed domestically, as is India's (Imbert 2003).

The fresh pineapple market has traditionally been dominated by Côte d'Ivoire, Costa Rica, and the Philippines (see figure 4.29). Growth in the fresh pineapple industry has averaged 6 percent per year since 2000. Political instability in Côte d'Ivoire has caused its pineapple export growth to fall to 2 percent over the past five years, and it has lost significant market share to Costa Rica and Ghana. In fact, during this same period, Ghanaian exporters have achieved an average growth rate of 45 percent while Costa Rica has nearly doubled its exports to Europe. Costa Rica's success has centered on its usage of the preferred MD2 varietal, as well as the logistical competence and marketing prowess that the multinational Del Monte Foods employs to service the European market.

Ghana's West African location provides an excellent climate for growing fruits and vegetables, as well as advantages for servicing the European market. Ghanaian fresh pineapple exporters face fierce competition from Costa Rica, Côte d'Ivoire, Honduras, Mexico, Ecuador, and others. Costa Rica is the leading exporter of pineapple to the European markets with an annual export of about 300,000 tons, followed by Côte d'Ivoire with exports of 150,000 tons, while Ghana has just reached the third position with 71,000 tons.¹ Ghana's main competitive advantage over Costa Rica is its location, while its political stability and business environment compare favorably with Côte d'Ivoire.

Overall, Ghanaian pineapple exports to European markets have increased in recent years thanks to greater

Figure 4.29 Pineapple Exports



Source: FAOSTAT data.

investment in the fruit export industry from both the private and public sectors. Regulatory reform, tax incentives, market linkages, investments into new varieties, public-private partnerships, and new economies of scale within the value chain have all helped to expand the Ghanaian pineapple industry.

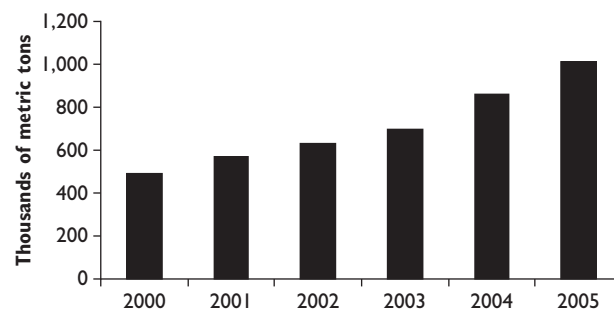
BACKGROUND

The European market

The European market for fresh produce has been expanding with the rising incomes of European consumers. In 2005, the European market imported approximately 1 million metric tons of pineapples (see figure 4.30), of which one-quarter are estimated to be fresh pineapples (Vagneron, Faure, and Loillet 2005). However, several changing factors are driving the transformation of the produce sector, including supermarket strategies, food safety legislation, supply chain integrity, rationalization of the supply base, and innovation. Consolidation of European supermarkets has, in part, been driving these changes. By the early 2000s, seven of the largest food-retailing chains in Europe accounted for 76 percent of fresh fruit and vegetable sales and 70–90 percent of fresh produce imports from Africa (Hallam et al. 2005). In the United Kingdom, supermarkets are even more concentrated, with just four big chains accounting for 73 percent of sales at supermarkets and convenience stores (*Economist* 2007). Thus, the EU-SSA pineapple export supply chains are characteristic of buyer-driven global commodity chains; the European supermarkets increasingly demand products that are low cost and quality certified (resulting in higher profits via the use of branding), as well as new methods of marketing differentiation.

European populations with higher disposable incomes have increasingly been demanding high-standard, certified

Figure 4.30 European Pineapple Imports



Source: FAOSTAT data.

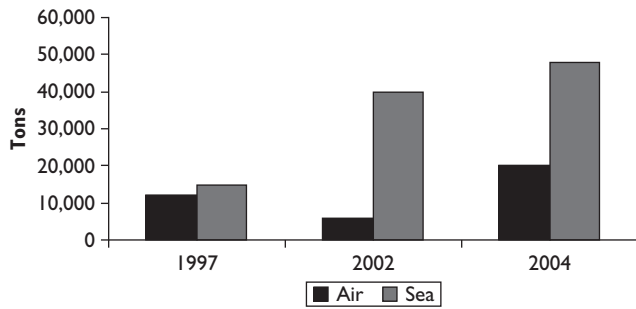
fresh fruits and vegetables on a year-round basis. The European market is characterized by several relevant market factors and trends:

- Increases in wealth and demand for high-value products (many of which are imported)
- Exotic produce market growth
- Diversified preferences: national and ethnic
- Revolution in market structure: retail outlet dominance, foodservice, and catering
- New marketing formats: prepackaging and pre-cut vegetables
- Consolidation of sources: direct linkages and faster market response
- Regulatory environment change: lower tariffs but increased safety constraints
- Value chain integration and just-in-time inventory
- Logistics networks: sea freight and airfreight capacity
- Niche markets, biocertification, and fair trade

In Ghana, fresh pineapple is exported by 60 companies, although more than 50 percent of the total export volume is produced by the larger companies, such as Jei River Farm, Farmapines,² and Koranco Farms. Exporter association organizations, like the Sea Freight Pineapple Exporters of Ghana (SPEG), the Horticultural Association Ghana (HAG), and the Exotic Fruit Exporters Association of Ghana (EFEG), work to help Ghanaian exporters service the growing European fresh produce market. Processing companies such as Blue Skies, Tonggu Fruits, and First Catering export fresh-cut pineapples to high-quality retailers such as Marks & Spencer and Sainsbury's.

Ghanaian fruit exporters source their products from both commercial farmers (70 percent) and small-scale farmers (30 percent), and the large commercial farming

Figure 4.31 Ghana's Fresh Pineapple Exports to the EU



Source: Voisard and Jaeger; Ghana Horticulture Development Study; and SPEG (2004 figures).

enterprises are typically operated as outgrower schemes. While recent market conditions have led export companies to increasingly invest in vertically integrated outgrower operations, nearly all exporters mitigate risk by buying fruit from small-scale farmers to supplement commercial farms' production. By sourcing from small-scale producers throughout the country, exporters ensure a diverse supply chain that is not as susceptible to weather, crop sickness, or other unpredictable risks.

GHANAIAN EXPORTS TO EUROPE

During the late 1980s and early 1990s, Ghana carved a significant niche in the European Union (EU) market as a primary supplier of top-quality, airfreighted pineapples, supplying about 60 percent of the estimated annual 20,000 mt of pineapples airfreighted to Europe.³ Throughout this period, only a small amount of pineapples were sea-freighted (2,710 tons). Figure 4.31 presents the evolution of total Ghanaian pineapple exports to the EU through 2004. The airfreight market's success was due to Ghana's liberal market regulation, efficient handling services, and the diversity of available and relatively inexpensive flights to all parts of Europe. However, during this period, pineapple export operations remained segmented and spread among many participants, and little integration was accomplished. Ghanaian export volumes were eventually restricted by the limited airfreight capacity of commercial passenger aircraft.

THE BLUE SKIES HOLDINGS LTD. VALUE CHAIN

Established in 1998, the Blue Skies Holdings⁴ processes fresh, chilled pineapple, mango, watermelon, passion fruit, and papaya for export (see accompanying operating schedule).

Blue Skies' products are certified to meet the EurepGAP protocols for quality compliance. Fruits processed by Blue Skies are sourced mainly from Ghana's eastern and central regions, with supply gaps being filled by imports. The Blue Skies value chain is highly integrated, having incorporated operations from buying and transporting raw pineapples to delivering certified, cleaned, cut, packaged, and branded pineapple pieces to UK distribution networks. The company has made excellent use of its owner's networks within the EU super-market industry to achieve market access for its products.

Since 2000, the company has grown tremendously, expanding its value chain by incorporating additional operations into its processing facilities. It has also expanded its local employment. Blue Skies began operations with 38 workers and has since increased its workforce to 1,000, over 60 percent of whom are permanent staff. It has also replicated its business model with similar ventures in South Africa and Egypt. By providing good extension services and farmer training, and by offering higher prices, the company has rapidly increased its production from one to about 35 tons per week. Blue Skies is also known to pay its farmers promptly and at a higher price per kilogram than other pineapple buyers in the Nsawam area of Ghana.

Blue Skies does not provide credit to farmers, nor does it link them to any financial agents; its prompt payment and higher prices are sufficient incentives for farmers to invest in their farms. In addition, the company has assumed technical and financial responsibility for certifying all its suppliers. It also provides inputs and equipment to its producers for purchase. Because of the investments needed to get certification, those suppliers whom Blue Skies has helped obtain EurepGAP accreditation are obliged to sell to the company. Recently, 57 percent (77 of 135) of Blue Skies' small-scale pineapple producers were certified as organic, fair trade producers. Blue Skies operates with individual farmers and not cooperatives.

Several factors contributing to Blue Skies' success reflect concepts discussed throughout this Guide, such as high levels of trust, sharing of information, innovation, value addition, positioning collaboration, and risk mitigation. Blue Skies emphasizes prompt payment to farmers, the provision of training and education on EurepGAP standards, certification of farmers, interest-free loans for dedicated farmers, and willingness to improve local road infrastructure to improve access to farms by company trucks.

CONCLUSION

Blue Skies has been able to take advantage of strong market linkages with the European grocery sector, access to

Blue Skies Operating Schedule

In less than 48 hours, fresh organic pineapples are harvested in the mountains of Ghana and delivered to UK consumers.

Thursday

9:00 AM: Pineapples are harvested in Akwapim Mountains (100 km west of Accra)
 10:00 AM: Men cut pineapples and women deliver them to collection point
 10:30 AM: Pineapples are sorted by class at collection point
 12:00 PM: Fruit is loaded onto trucks and heads to Blue Skies factory, 100 km away (2,000 pineapples per truck)
 2:00 PM: Pineapples arrive at factory and are processed
 2:45 PM: Pineapples roll off assembly line and are cleaned; “topped and tailed”; have their skin trimmed; weighed; sealed in Sainsbury-labeled (UK supermarket) tubs; put in holding chillers; and packed into cardboard boxes
 7:00 PM: Refrigerated load of pineapples leaves factory for 100 km journey to Accra

Source: Blue Skies corporate Web site, www.bsholdings.com.

10:00 PM: Boxes of pineapples are packed onto British Airways flight and take off for the United Kingdom

Friday

5:45 AM: Pineapples arrive in London and go through customs
 8:45 AM: Pineapples are taken to British Airways perishables-handling center outside of London
 9:30 AM: Pineapples are taken out of cold storage and quality is inspected again
 11:00 AM: Sainsbury truck picks up pineapples and takes them to the supermarket’s distribution center 58 km away
 12:00 PM: Fruit is sorted according to Sainsbury store orders

Saturday

4:00 AM: Delivery to Sainsbury stores made
 5:00 AM: Fruit goes on sale in organic section
 7:00 AM: European shoppers begin to purchase pineapples
 9:00 AM: European consumers eat pineapples for breakfast

information on innovative practices, and foreign capital and expertise. It has implemented a highly sophisticated production and quality control model and provided appropriate incentives and support to its suppliers. Blue Skies services a value-added portion of a large, highly competitive commodity market. Starting with the same raw material, the value chain and operating model of Blue Skies are very different from that which the Sea Freight Pineapple Exporters of Ghana has successfully implemented, which we will discuss in tool 7.

NOTES

1. GEPC News, <http://www.gepcghana.com/news.php?item=4&n=>.
2. Despite its contribution to exports, Farmapines’s output has subsequently declined, and it is now a marginal contributor to sub-sector exports
3. Partnerships for Agribusiness Development, Agricultural Trade, and Market Access by TechnoServe for NEPAD, November 2004.
4. <http://www.bsholdings.com/>.

Horizontal Collaboration—Creating and Taking Advantage of Economies of Scale

Tool 6 focused on approaches to vertical integration within a value chain. Horizontal linkages also offer excellent opportunities for value chain participants to obtain scale advantages through interfirm coordination. By combining resources and sharing information, horizontal cooperation allows participating companies and producers to achieve improved quality, service, and savings through increased access to inputs, more leverage in sales negotiations, and greater ability to design initiatives that emphasize upgrading the value chain.

This tool focuses on the implementation of horizontal collaboration mechanisms and linkages among businesses to overcome problems stemming from small-scale activity by some individual producers or enterprises. This small scale prevents them, for example, from accessing inputs at optimum prices, from reducing the uneconomical unit costs of extension services, or from enjoying enhanced market power stemming from increased volumes of production and nonfragmented marketing.

Typical benefits of collaboration to achieve scale in transactions or operations include reduced costs from activities carried out jointly and increased access to more and better inputs and services, which enables more professional management and marketing due to greater affordability. Looking further, though, horizontal collaboration among enterprises creates a collaboration platform that could later allow the chain to move toward forward or backward integration (discussed in tool 6), or to achieve improved quality (tool 9). Business-to-business collaboration is certainly an approach that enterprises can and should explore independently. There is also potential for development partners and other facilitators to assist the value chain participants in recognizing and creating collaborations.

The first step for enterprises looking to implement horizontal linkages is to identify areas in which they can operate

jointly with increased efficiency and effectiveness. Typically, there will be many opportunities—in marketing, procurement of inputs, management, or logistics.

When enough enterprises have expressed interest in the idea of horizontal cooperation, some type of operational form, such as a simple agreement or a set of actions facilitated by a producers' association, formalizes the arrangement. The benefits of horizontal collaboration can lead to the creation of cooperatives, associations, or new companies, or toward the reorientation of existing organizations to perform the joint activity. For example, joint purchasing of inputs could form a basis for an inputs depot to be run by an association or as a jointly owned commercial venture in which many of the enterprises are represented. The need to obtain quality extension services can similarly be satisfied through a more developed member services association or cooperative. Joint marketing and logistics can lead to the creation of a collection center, which could be responsible for increasing product volume sales and thus obtaining better prices while reducing transportation costs when consolidating shipments. The center could be operated as a company or within a cooperative.

Economies of scale do not necessarily need to be developed through producer associations or cooperatives. Horizontal linkages are in many cases recognized, instigated, and organized by lead firms in the value chain.

A STEP-BY-STEP SUMMARY FOR TOOL 7: HORIZONTAL COLLABORATION—CREATING AND TAKING ADVANTAGE OF ECONOMIES OF SCALE

- Identify areas in which enterprises performing similar activities in the chain can operate jointly with

increased efficiency and effectiveness. Typically, many will be in marketing, procuring inputs, management, and logistics.

- Promote the idea to generate enterprise buy-in.
- Give operational form to the collaboration, such as through simple agreements, cooperative creation, new associations, or companies; reorient existing organizations to perform the joint activity.

CASE STUDY 8

Creating and Taking Advantage of Economies of Scale—The Ghana and Côte d'Ivoire Experiences in Fresh Pineapple Exports

*Michael Gorman and Martin Webber
J. E. Austin Associates, Inc.*

INTRODUCTION

The case accompanying tool 6 described a successful story of vertical integration within the Ghanaian pineapple value chain. This case looks at a story of achieving economies of scale within the same industry. Economies of scale characterize a production process in which an increase in the number of units produced or managed generates a decrease in the average cost per unit. Achieving economies of scale is important when the minimum units required to access desired inputs, services, technologies, or other capacities are quite large. Such minimums are required to dissipate the high usage or acquisition costs of a service or facility over a larger number of inputs in order to increase efficiency.

The term “reaching scale” refers to attaining a level of production that allows the addition of further investment or the incorporation of additional operations and also enables wholesale input procurement. Where individual actors lack such scale, collaborative mechanisms can substitute. In Ghana, pineapple exporters were required to reach substantial volumes (scale) before they were able to access sea-freight transportation. This case describes their success.

CÔTE D'IVOIRE: ORGANISATION CENTRALE DES PRODUCTEURS-EXPORTATEURS D'ANANAS ET DE BANANES

In 1999, Côte d'Ivoire was the largest horticulture exporter in West Africa, exporting US\$140 million of fruits and

vegetables, primarily bananas and pineapples. A brief look at Côte d'Ivoire in the 1980s and 1990s helps to put Ghana's actions in perspective (Minot and Ngigi 2003).

As a result of increased competition from Thailand, the collapse of state enterprises, and economic reforms that reduced subsidies, Côte d'Ivoire exports of canned pineapple and pineapple juice practically disappeared by the late 1980s. In response, much of Ivorian pineapple production switched over to the export of fresh pineapples to Europe by Sea Freight, using the same refrigerated freighters (“reefers”) that are used to transport bananas. This move took advantage of Côte d'Ivoire's proximity to Europe, a factor much more important in the fresh pineapple trade than in the market for canned pineapple given spoilage considerations.

However, by the late 1980s, Côte d'Ivoire began to lose market share to fresh pineapple exporters in Central America and the Caribbean. After supplying close to 90 percent of the European market for fresh pineapple in the mid-1980s, Côte d'Ivoire's market share fell to two-thirds in 1990 (Rougé and N'Goan 1997). But the 1990s also brought several changes favorable to the Ivorian fruit and vegetable export industry.

First, in the 1990s, the Organisation Centrale des Producteurs-Exportateurs d'Ananas et de Bananes (OCAB) was formed to represent the interests of exporters, set quality standards, and facilitate communication. OCAB has reduced the number of “approved” exporters of fruit in an attempt to maintain quality standards. It also organizes the charter of

refrigerated ships to transport bananas and pineapples to Europe. Second, in 1993, after much debate, Europe harmonized its banana import policies to make way for the single European market and continued granting former colonies preferred access to its markets. Third, the 50 percent devaluation of the CFA franc in January 1994 helped stimulate the economy, particularly the export sectors.

The net impact of these three factors was that banana exports grew from 95,000 mt in 1990 to 215,000 mt in 1999, while fresh pineapple exports expanded from 135,000 mt to 183,000 mt over the same period (FAOSTAT data 2002). Côte d'Ivoire became the second largest fresh pineapple exporter in the world after Costa Rica (Ti 2000). It is estimated that approximately 35,000 people are employed by the banana and pineapple plantations.

In pineapple production, smallholders continue to dominate. Seventy percent of Ivorian pineapple exports are produced by smallholders on farms of 0.5–10 hectares. The remaining 30 percent is produced by large plantations, including some owned by vertically integrated banana companies such as Compagnie Fruitière and Chiquita. One reason for the greater involvement of smallholders in pineapple production compared with banana production is that the initial investment cost of establishing a plot is estimated to be three to four times greater for bananas (Rougé and Goan 1997).

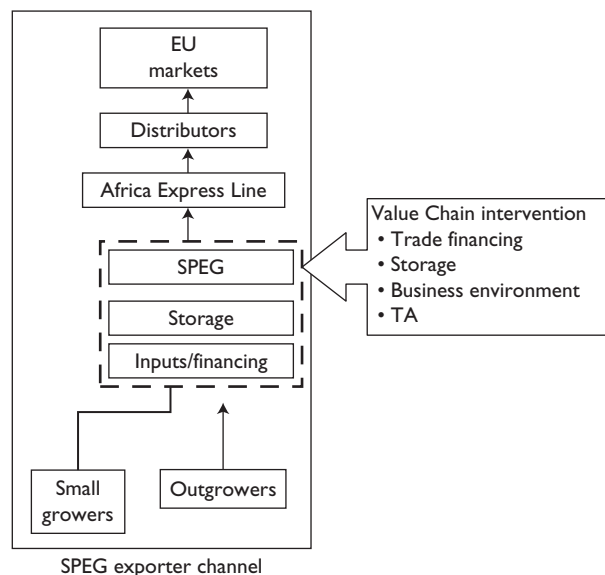
Several factors lay behind the past success of fruit and vegetable exports from Côte d'Ivoire. First, Côte d'Ivoire had long been known for its political stability. Second, President Houphouët-Boigny had, for the most part, supported agriculture-led growth. Third, Côte d'Ivoire had benefited from its proximity to European markets since it is just 8 to 10 days by sea freighter from Marseilles. Although it also benefits from frequent air connections with Paris, this factor was less important since most Ivorian fruit and vegetable exports have been via Sea Freight. Fourth, the government had relatively limited involvement in production and marketing, particularly in the horticulture sector.

However, with Côte d'Ivoire's current political instability, much of the fresh pineapple exporting industry has shifted to more stable locations such as Ghana.

THE SEA FREIGHT PINEAPPLE EXPORT VALUE CHAIN

The Sea Freight Pineapple Exporters of Ghana was formed in 1995 by Integral Ghana Ltd., Jei River Farms, and John Lawrence Farms¹ to develop sea freight shipments of fresh pineapples from Ghana (see figure 4.32). SPEG chose Union Bananière Africaine (UBA/Dole) of France that same year to

Figure 4.32 Ghana's Pineapple Value Chain



Source: J. E. Austin Associates, Inc.

provide freight services to the Ghanaian industry. The UBA boats are refrigerated vessels transporting bananas from Cameroon, and operators allocate space for Ghana's pineapples based on available free space after the banana loads. Travel times to southern and northern EU destinations are 9 and 13 days, respectively.

Since its formation, and the introduction of sea-freighting, SPEG has become a driving force in the Ghanaian pineapple industry and has been profitable from its inception. As a result, its membership increased from three in 1995 to 22 by mid-2005 (Danielou and Ravry 2005). Pineapple exports from Ghana have increased from 15,764 tons valued at US\$5.6 million in 1995 to 57,392 tons valued at US\$18.3 million in 2003. The percentage of sea-freighted exports to total pineapple exports increased from 17 percent in 1995 to 68 percent in 2003. At its peak, Ghanaian pineapple exporters had access to two vessels on a regular weekly basis to the European ports of Vado and Vendres in the south and to Port Antwerp in the north. That particular supply chain has subsequently atrophied. Ships now arrive on a less regular basis, with vessels from Cameroon bypassing Ghana.

The availability of regular vessel services since 1995 has benefited all producers. Large-, medium-, and small-scale producers expanded production and generated increases in farm-level incomes and employment. The 10 largest exporters controlled about 71 percent of total exports in 2004 (TechnoServe 2004).

Although initial pineapple exports from Ghana were private sector initiatives, the Ghanaian government is also supporting sea-freighting by dedicating a facility at Port Tema for the consolidation of shipments. Ghana's government and industry players have successfully constructed one handling facility at Port Tema, although the details on who will manage and operate the shed are still being negotiated. The government is also planning a second holding facility at the airport. This facility is planned to be compliant with GlobalGAP rules.

BENEFITS FROM BUSINESS PARTNERSHIPS

The most important partnership developed over the past nine years is the SPEG-Union Bananière Africaine (now Africa Express Line) arrangement for the sea-freighting of pineapples. This strong partnership has ensured the availability of regular vessel services since 1995.

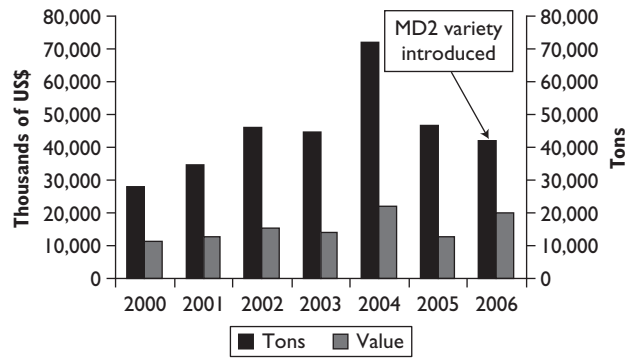
Polycraft, a local carton manufacturer, is also working with SPEG to provide its members with 35 percent of packaging requirements. SPEG also undertakes bulk procurement of agrochemicals from suppliers such as Wienco, Chemico, and Dizengoff for distribution to its members. On average, SPEG budgets about US\$50,000 toward the purchase of agrochemicals for its members. The prices that members pay are about 10 percent below market price but include a small margin to cover administrative costs.

SPEG's success in increasing Ghana's primary pineapple exports was at least partially due to the development of sea freight capacity. Another success factor in the industry was Ghana's proximity to the market.

The early airfreighting of Ghana's pineapple exports was attractive because the fruit could arrive at the EU market in six hours. Sea Freight extended shipping periods to between 9 and 13 days to southern and northern EU ports, respectively. Ghana had logistical advantages over Latin American exporters (who have longer shipment periods of 16–20 days to the EU) until recently due to the EU's new preference for the MD2 pineapple, which Ghana was not producing.

In 2005, Ghana lost considerable market share due to its decision not to invest in the MD2 varietal. However, since the

Figure 4.33 Ghana's European Pineapple Exports



Source: Ghana Exporters Promotion Council.

adoption of MD2, Ghana's pineapple quality and presentation are now up to EU standards and its export revenues have increased in per unit value (see figure 4.33; this topic is further discussed in tool 6).

CONCLUSION

During the period from 1995 through 2006, SPEG was able to increase its share of the expanding European pineapple market by building scale through leveraging its relative logistical competitive advantages over its Latin American counterparts. SPEG is also working with its members to meet EurepGAP standards and implement new traceability, certification schemes and other standards and to provide other services.

NOTE

1. SPEG was formed with support from the Ghanaian government and USAID under the Trade and Investment Program (TIP). The TIP provided technical staff during SPEG's three formative years to oversee the coordination of sea shipments. Ghana's government leased a shed at Port Tema to SPEG solely for the consolidation of fruits before shipment.

CASE STUDY 9

Creating and Taking Advantage of Economies of Scale within the Mozambican Cashew Value Chain

*Carlton Jones and Martin Webber
J. E. Austin Associates, Inc.*

INTRODUCTION

This case demonstrates how firms identified common areas for collaboration and created an association in the Mozambican cashew value chain that enabled the companies to achieve economies of scale in operations. Revisiting the example presented in Tool 5, Identifying Business Models for Replication, this case looks at an analysis commissioned by USAID of value addition opportunities in the Mozambican value chain aimed at revitalizing the country's processing capacity. In the analysis, lead firms were identified to establish new processing centers, and once operational, this model was replicated and implemented by other processors. Those same processors experienced bottlenecks in the value chain and came together to address those constraints through economies of scale. These economies are realized when horizontal linkages occur, and the linkages are most likely to be successful when there is a common platform from which firms can operate. In this instance, Mozambican processors were willing to organize and identified areas in which to jointly operate, creating an association that carried out those shared functions.

POINTS TO CONSIDER

While reading this case, consider the environment and actors that drove the processors to consider organizing, the steps they took, and the benefits they realized once the

association was established. There are three principal benefits to horizontal linkages: 1) lower costs, 2) access to services or inputs that are not easily acquired by an individual processor, and 3) pursuit of initiatives that are difficult for processors to accomplish on their own.

Also consider the services offered by the association, as they are good examples of market-driven (demand-side) services that have a stronger likelihood of being sustainable.

BACKGROUND

From the 1920s until the mid-1970s, Mozambique was considered the world's leading cashew producer (240,000 mt at its peak in 1973; TechnoServe 2004) with a considerable domestic capacity for processing quality cashews. In 1978, the government of Mozambique banned the export of raw nuts in an attempt to stimulate domestic processing. Within a few years, Mozambique had over a dozen processing factories and was the first African country to process cashews on an industrial scale. But by 1994, after a variety of events—including a civil war, the adoption of policies that fixed raw nut prices, and the continuation of the raw nut export ban—the cashew sector collapsed (see figure 4.35; FAOSTAT 2003). At the end of the civil war, those policies were abandoned, and the government of Mozambique hoped to reclaim its past reputation of progress by investing heavily in large-scale mechanical processing facilities. Unfortunately, the government also

Figure 4.34 Regions of Mozambique



Source: World Bank.

introduced a high tax on raw nut exports with the goal of pushing the entire industry to domestic processing.

In 1995, the Mozambican government liberalized the cashew sector to meet World Bank conditions for continued

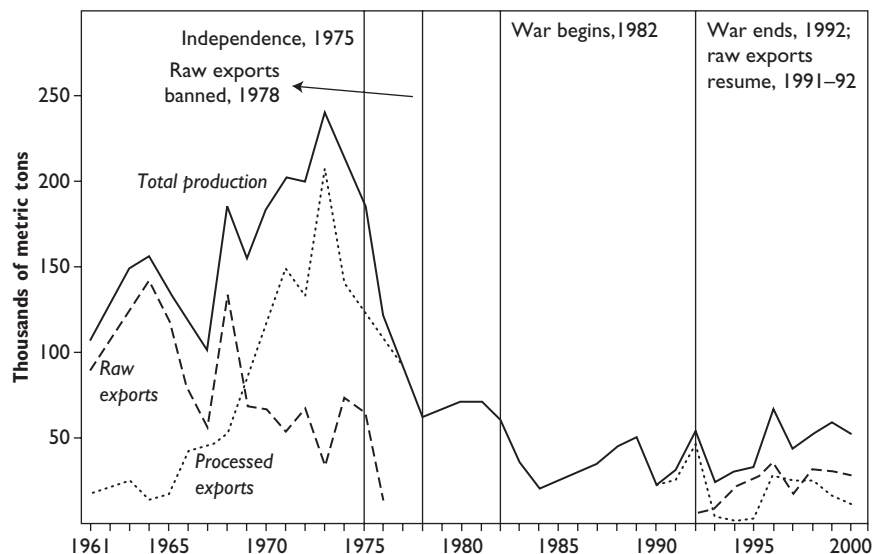
loans. (The rationale for this approach was highlighted in the discussion of tool 5.) The reduction of export tariffs did, in fact, increase prices slightly, but it also led to the closure of Mozambican processing factories. With those factories closed, Mozambique’s cashew sector entered another decline. By the late 1990s, instead of a vibrant value-added cashew sector, Mozambique exported most of its nuts—raw—to India for processing and value addition.

Seeing an opportunity to assist, USAID commissioned TechnoServe to conduct a cashew subsector analysis, seeking to identify innovative ways to revitalize the industry and maximize benefits to small growers. As discussed in tool 5, a model version of a small hand-processing plant was designed, piloted, and, by 2004, replicated.

The first successful plant, Miranda Caju, provided the replicable business model on which all other plants in Nampula province were based. Afterward, even though processors were established and growing, they still relied heavily on technical assistance. In examining the sector’s long-term viability, the processors recognized other extension-service needs that were not being met.

As other small hand-processors entered the market, stakeholders realized that to ensure long-term sustainability of the entire value chain, these extension services needed to be fee-based rather than subsidized. Unfortunately, if the extension services were provided at full price, only Miranda Caju could pay the fees and still operate profitably. This scenario

Figure 4.35 Mozambican Cashew Exports, 1961–2000



Source: FAOSTAT, Ana Machalela, INCAJU statistician, e-mail communication, July 2001; Raimundo Matule, deputy director of INCAJU, e-mail communications, September 2001 and May 2003. As adopted by McMillan, Welch and Rodrik (2003).

encouraged the processors to link horizontally to distribute the cost of extension services. Better still, this seemed to be a good business opportunity for a firm to provide these services to all processors as the sector continued to expand.

MOZAMBICAN CASHEW PROCESSORS LINK HORIZONTALLY

With the assistance of TechnoServe, Miranda Caju's president and founder, Antonio Miranda, considered by his peers to be an industry leader, brought together Nampula province's other processors to discuss jointly creating a private firm to provide services to everyone in the sector. This lead firm would provide valuable services to processors that would otherwise have a difficult time accessing them. These meetings led to the formation of Agro Industria Associadas (AIA).

SERVICES PROVIDED BY AIA

AIA began in 2004 as a private sector-led services firm comprising seven processor firms in Nampula. Each processor contributed US\$500 of seed money to start the firm and was considered an equal owning partner. AIA selected a president, Ali Cherif Deroua, and now provides the services once provided by a consulting firm. Some services are fee based, while others are nonfee based. AIA's fee-based services fall into three main categories: processing, distribution, and marketing. AIA provides the following nonfee services: training, branding, and advocacy.

Its processing services include importing non-nut inputs like packaging and machinery. Distribution services include warehousing and load consolidation at Port Nacala and completing and filing paperwork for export administration. In marketing, AIA provides fee-based services such as selling (order-filling) to global buyers and providing pre-shipment quality control. These quality control measures include ensuring Hazard Analysis and Critical Control Point (HACCP) and EurepGAP compliance by adopting a "three strikes, and you're out" cut rate for suppliers. In this system, suppliers are encouraged to improve their quality measures or risk being excluded from the supply chain if they incur three quality infractions. Adopting this system has reduced instances of poor quality and increased export prices.

AIA provides marketing intelligence to its members through training seminars and advocates on behalf of members by engaging in public-private dialogue. In the past, these discussions have included negotiating with the government of Mozambique for targeted infrastructure investments and improving market regulations. With outside technical

assistance, AIA is advocating for a gradual reduction of the export tax on raw nuts, which, at 18 percent, penalizes farmers and hampers competitiveness. In addition to providing these services to existing processor members, AIA also actively recruits and trains new processors.

Branding is one of the most interesting services AIA provides. Again, with outside technical assistance, AIA created the "Zambique" cashew brand. This brand was created to draw international awareness and interest to Mozambican cashews, especially from U.S. buyers.

HOW HORIZONTAL LINKAGES BENEFIT THE MOZAMBICAN CASHEW VALUE CHAIN

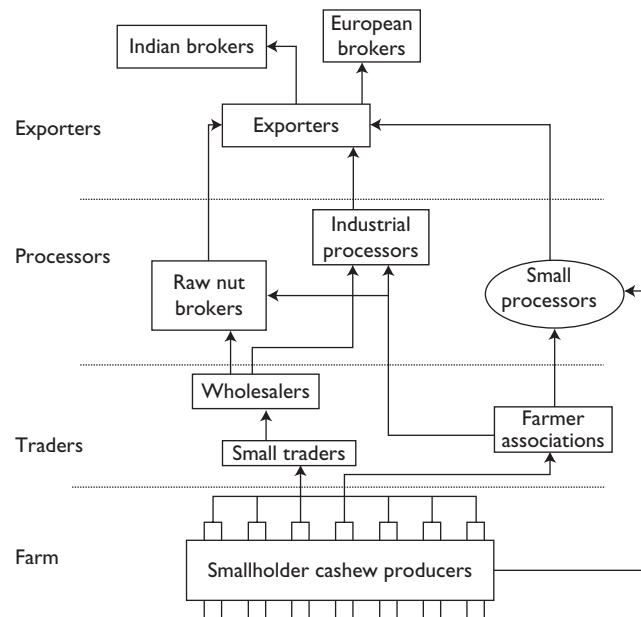
With AIA now providing much-needed services to small Mozambican processors (figure 4.36), the following benefits have been realized.

- *Improved quality control.* Through AIA, quality has improved and poor-quality claims have been reduced by over 50 percent. In 2005, 26 containers were cited as having quality problems, while in 2006, only 12 were. It is estimated that this reduction saved producers approximately US\$35,000 from 2005 to 2006.
- *Speedier and cheaper access to inputs.* Before AIA, it was nearly impossible to ask for duty exemptions. To qualify for duty exemptions, a processor had to export all imported items within three months. This did not match normal business needs because processing volumes in a year's time were less than a container load, so processors typically could only import their packing needs once a year and not qualify for the exemptions (see table 4.12).

With AIA, processors were able to combine orders to use temporary import-duty exemptions (IVA – 17 percent + duty 7.5 percent). AIA was also able to reduce shipping freight for its members. Before AIA, the average cost of exports per kilogram (kg) of kernels was US\$0.38, while after AIA, this cost dropped to US\$0.27, and then again in 2006 to US\$0.17 (see table 4.13).

- *Improved market linkages and information sharing.* With AIA, processors now have a timely and credible supplier in the market. AIA carefully selects sea lines and transit shipments, while keeping daily track of all containers. Not only are these shipping records shared among AIA members, AIA also sends reports containing updates on sales, stocks, and receivables to banks on a weekly basis. This has helped banks feel more comfortable about the perceived risks associated with the sector and has made

Figure 4.36 Domestic Value Chain for Mozambican Cashews



Source: J. E. Austin Associates, Inc.

Table 4.12 Cost of Packing Material before and after AIA

Item	Cost before AIA	Cost after AIA
Plastic bags	Bad quality and repacking rate of 12 percent = US\$0.72	Good quality and repacking rate of 5.3 percent = US\$0.52
Cartons	3-ply (considered too thin) = US\$1.10	5-ply with 4 colors and printed Zambique logo = US\$0.085

Source: TechnoServe 2007.

Table 4.13 Cost of Shipping before and after AIA

Item	Cost before AIA	Cost after AIA
Container to Rotterdam	US\$1,850	US\$1,450
Port and service costs	US\$920	US\$750–800

Source: TechnoServe 2007.

credit applications a little easier to file. This improved access to information would not have been possible for individual processors, although information is not the only thing shared among AIA members. Today, the improved communication and collaboration among AIA members has also translated into an atmosphere of cooperation between firms. When one member experiences shortage of an input, other AIA members pitch in to provide those supplies, recognizing that as each firm gets stronger, the entire industry benefits.

- *Improved industry image through “Zambique” brand.* Time will tell how successful the introduction of a brand will be and how it will impact the Mozambican cashew sector. Early indications suggest that a unified brand has helped buyers recognize that small processors in Mozambique have improved their quality. The brand has certainly improved the solidarity of members within the sector.

LESSONS LEARNED

Horizontal collaboration mechanisms, such as those of AIA members, demonstrate the benefits of joint operation. Increasing producers’ market power, enhancing their market linkages, and improving quality are all benefits that other industries can consider when seeking to improve their value chains through horizontal linkage.

