Case Study:
Private Sector Supply Chain Development for Launch of New Ugandan Beer
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Acknowledgements

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Synopsis

Nile Breweries Ltd. (NBL), the leading producer and marketer of beer in Uganda, wanted to develop a competitively priced beer for the local market. Using local grain rather than imported malted barley, NBL saw an opportunity to produce and market a new low-cost, sorghum-based beer. Pilot trials showed that brewing using the local sorghum produced a high-quality, clear beer. To achieve their ends, NBL developed a supply chain through strategic partnerships with small and medium enterprises (SMEs) that could reliably deliver a consistent quality of raw material. The resulting success created benefits throughout the value chain, fostered knowledge spillovers and replication on a pan-African scale, and improved grain yields and farmer incomes.

NBL faced the challenge of developing a scalable local supply chain, in which thousands of small farmers, aggregators, and processors would collect and prepare grain and deliver a uniform raw material to the brewery. The 2002 launch and subsequent success of Eagle Lager was carefully built on a combination of product research, institutionally backed plant breeding, government support, seed production, an active crop extension program, farmer associations, and SME processing and drying capacity, all within the supply chain to support a market and brand development program. From its origins of importing 100 percent of raw material requirements, NBL now sources 70 percent of raw material locally, and is aiming for over 95 percent in the near future.

An Eagle-branded beer is now the highest-selling beer product in the country, with Eagle beers contributing substantially to NBL’s 60 percent market share. Last year, the company reported it had acquired 12,000 tons of sorghum from SME agro-processors and farmer associations representing approximately 20,000 smallholder farmers who received total revenue of US$4 million.

Introduction: The Launch of a New Product

Nile Breweries Limited (NBL), a leading Ugandan brewery within the global SABMiller beverage company, wanted a lower-priced product to sell within the local market. NBL had been importing most of the ingredients for its beers, including expensive malted barley. High production costs, coupled with an excise tax of 60 percent, made the import-based products too expensive for many local consumers. In contrast, home-brewed products were priced at 10 percent or less than NBL’s import-based brewed products. In the early 2000s, NBL started the search for local ingredients that could be substituted at a lower cost.

There is a tradition of home brewing in Uganda, though the quality and hygiene of the product is inconsistent. The traditional red and yellow varieties of local sorghum often produced a bitter-tasting product, which did not meet the company’s standards. With the expertise of researchers at the National Semi-Arid Resources Research Institute (NASARI), a new variety of white sorghum, Epuripur, was identified as having the right characteristics for producing beer.

Epuripur-type sorghum proved to have excellent brewing qualities, and pilot brewing using the sorghum produced a high-quality, clear beer. These trials gave rise to a new product, Eagle Lager, a flagship product for what would eventually become the best-selling brand in the Ugandan market.

Establishing the Sorghum Supply Chain: The Critical Role of Grower Associations and Agro-Processing Small and Medium Enterprises (SMEs)

The evolution of the program to produce and utilize local raw material in NBL’s products created two supply chains: one for sorghum, and eventually, one for barley. The program was initially self-financed from NBL’s own revenue streams.

The sourcing of Epuripur sorghum by NBL had a modest beginning. The sorghum supply chain started with small groups of farmers loosely organized into associations focused on four geographic locations. This clustering facilitated the aggregation of crops produced by numerous small farmers, and the provision of extension services and training to farmers.

NBL contracted Afro-Kai Ltd, an SME input distributor with some exposure to grain trading and processing. The company was responsible for supplying seed, as well as purchasing, aggregating, cleaning, grading, drying, and storing the sorghum prior to delivery at the brewery. Through its relationship with Afro-Kai, NBL offered a supportive sorghum production and off-taking program, which was welcomed by farmers affected by falling global demand and prices for cotton, the principal cash crop in the targeted growing areas for the initial supply program. Sorghum became a much-needed substitute cash crop.

With the beer’s commercial success, production and sourcing volumes grew, drawing new actors into the supply chain. The loose associations of farmers received sufficient revenue to invest in their operations and organize, developing formal organizations with business charters. Some of these entities also purchased grading and drying equipment to take on some processing activities, though they still sold and supplied grain to NBL through Afro-Kai. Most of the grower associations that supply NBL are not agro-processing SMEs; rather, they are primarily product aggregators. As grower associations became stronger, and even started processing grain, AgroWays, a local SME grain-trading firm, took over most of the sourcing.

**Afro-Kai Ltd**

In 2003, NBL contracted with a local SME, Afro-Kai, to develop a reliable supply chain for a new variety of sorghum. While farmers were used to growing sorghum in the initial four target locations, the challenge was keeping the production and harvest of the Epuripur variety separate from the traditional, common varieties. NBL required a partner with direct ties to production communities in order to overcome this obstacle.

Afro-Kai was incorporated in 1984 as a local agricultural service SME. In the 1990s, the company was active with donor and aid agencies in procuring grain for famine relief. Additionally, Afro-Kai was one of the earliest suppliers of agricultural seed and inputs in Uganda. As an input distributor with grain aggregation and trading experience, Afro-Kai was well positioned to distribute the new seed variety and organize farmers for collection during the early days of the project.
Afro-Kai built cereal collection and storage facilities in the initial four districts, and established cereal grain cleaning and processing facilities. The contract with NBL allowed Afro-Kai to finance the crop aggregation. In the initial pilot, 350 farmers from the four districts grew and sold Epuripur sorghum to Afro-Kai. Farmer participation increased to 1,133 the following year, and again to 8,326 farmers in 2006.

This considerable growth can be attributed to several factors. Epuripur-type seed, the most expensive production input, was heavily subsidized by NBL through Afro-Kai. In addition, Afro-Kai’s reliable off-taking had a “demonstration effect,” attracting other farmers in the community who were anxious to have a secure cash crop. Most importantly, Afro-Kai had the ability to organize sufficient seed production and ensure its full and proper use. Thus, the sorghum production package offered by NBL—including a guaranteed price, improved and subsidized seed, and access to NBL extension services—caused many farmers to switch to the new sorghum variety.

In 2006, NBL was then a victim of its own success. Without participation caps or direct control by NBL, the reach and appeal of the sorghum production program resulted in a harvest more than double NBL’s needs. The company honored their contracts, as NBL knew that this was a pivotal point in the development of its sorghum supply chain. If NBL rejected excess supplies, it would likely tarnish the good reputation of the program as a reliable buyer, discouraging farmers from future cultivation.

A traditional supply chain management approach was applied in the early years, where Afro-Kai purchased grain as the agent of NBL, and NBL left the procurement management to Afro-Kai’s staff. After the oversupply of the 2006 harvest, NBL realized that it required greater control over procurement, and that NBL extension staff should be directly involved with pricing and contract decisions with farmers and farmer associations. In addition, the company protected against further gluts by encouraging diversification. The following season, NBL distributed other seed, such as rice and maize, that had a local market or could be consumed by the family, as no sorghum was purchased in 2007. While NBL’s relationship with Afro-Kai was initially fruitful, it eventually turned to organizations with more experience in the collection and storage of grain at a larger scale.

**Farmer Associations**

Initially, the associations were loose groups of 50 to 60 farmers who would join together to market their crop. After several years, culminating in the bumper harvest of 2006, NBL found procurement to be too centralized around one SME (Afro-Kai), with both NBL and farmers wanting more decision-making power. Furthermore, as NBL’s demand for sorghum grew, the sourcing program needed to support expansion into the major production areas beyond the four pilot districts.

Historically, the primary buyers of grain from farmers were the so-called “middlemen” who offered prices with a “take it or leave it” attitude. NBL did not want to be seen as a middleman or to rely on such sources, yet the firm also wanted to avoid direct sourcing from the thousands of smallholder farmers. As a result, NBL decided to evolve its sourcing program by supporting the formation of formal farmer associations.

Developed without financing from NBL, these formalized associations provided the structure necessary to deliver certain supply chain program functions, particularly for farmers distant from the initial four pilot districts, and allowed NBL to engage more directly with farmers on pricing and crop contracts. The associations would deliver training and support programs for farmers, serve as collection and processing points for farmers, and deliver crop payments initiated under NBL’s contract farming scheme (i.e., with the purchase price determined before planting). The associations might also handle maize, an important food crop in Uganda, for their members.

NBL employs a technical agricultural manager who develops contracts with farmer associations, and supervises the company’s support of the production program through the provision of regional extension services and the subsidized seed distribution system. Farmers also learn best farming practices through the associations.

Currently, the associations are legally registered entities, incorporating the best elements of a cooperative and commercial business structure. Each association has a board of directors and designated management, all controlled by the farmers. The larger associations have processing and storage facilities and sell $600,000 to $700,000 of grain annually, but most are smaller organizations without processing equipment. As of 2016,
30 farmer associations are selling to NBL, although about 10 of these associations provide over 80 percent of the raw material.

The emergence of associations as processors broadened NBL’s sourcing options. However, the brewery still required an intermediary to acquire and process the grain from the smaller, non-processing associations, as well as to store and deliver the grain from the processing associations to NBL. AgroWays, an experienced SME grain trader, served as this link.

**AgroWays Ltd.**

AgroWays possesses a nationwide footprint of facilities to clean, dry, bag, and grade sorghum to NBL’s specifications. AgroWays was the first of only a few grain procurement companies to receive a license from the government of Uganda to issue warehouse receipts; Afro-Kai was not licensed. AgroWays’ government-licensed receipts allow its clients and suppliers to use their storage documents as security to obtain bank financing. AgroWays is also developing facilities to market bulk grain in order to become more efficient and reduce logistical costs.
With these resources, AgroWays became the primary aggregation and processing SME supplying NBL with sorghum. The company buys sorghum from up to 30 farmer associations. The firm is also a buyer and marketer of maize, working with 142 farmer associations for this crop.

Under contract with the brewery, AgroWays pays the farmer associations for grain received, then processes, warehouses, and delivers the crop to the brewery with its fleet of trucks. Approximately 80 percent of the sorghum that arrives at their facility requires further processing (i.e., cleaning, drying, and bagging). Much of the grain is delivered to AgroWays in used bags of various sizes, while NBL seeks a uniform 50-kilogram bag for delivery to the brewing facility. The remaining 20 percent comes from SME grower associations that have their own equipment to process the grain to approved specifications.

**Nile Breweries Ltd**

Sorghum-based beer production required an investment in new equipment, including a mash press and different operating procedures. Securing a reliable supply of raw material was important in order to support the company’s investment in new equipment. Building trust between NBL, as an off-taker, and the farmers was essential to achieving stable sourcing of raw material.

With cooperation from its supplying farmers and farmer associations, NBL initiated a contract farming scheme to support and sustain this trust, involving an open and transparent method for calculating each seasonal price (given two crops per year). In partnership with the grower associations, NBL calculates the cost of production, marking up the cost by 15 percent to determine the seasonal price offered. If farmers accept the price, it becomes a contract between NBL and the association of farmers. Thus, the farmers know what they will receive from their crop in advance of planting.

For NBL, contracting with AgroWays is important to the financial side of their beer business, as well. AgroWays shoulders the significant working capital requirements necessary to receive and carry seasonal grain inventory, thereby keeping the capital off of NBL’s financial statements. This location of working capital enhances cash flow and the return on investment, an important factor for NBL as part of a public corporation. This structure also allows the brewery to do what it does best, produce and market beer, while providing a flexible structure for NBL to link with the farming community.
BRANDING AND MARKETING OF EAGLE LAGER

The introduction of NBL’s lower-cost Eagle brand beer attracted considerable attention, as it continued to grow its market share. The Economist commented in a July 2003 issue, “In Uganda, a cold lager after work is an expensive luxury. Until recently, the main alternative was a cloudy, foul-smelling and sour brew made by local families. But now, an innovative new local lager is challenging these rivals—leading some to wonder if it will change the way that beer is made everywhere.”² The Economist was not far off in its early prognostications.

The objective of producing the sorghum-based Eagle brand was to provide a reasonably priced beer to compete with the wide variety of home-brewed products available to Uganda’s consumers. The price structure is as follows:

This structure is a product of the 20 percent excise tax on sorghum beer, in comparison to the 60 percent on beer made from imported raw material. Eagle Extra is a sorghum-based variant of the original Eagle Lager, while Nile Special is produced with imported malted barley. When NBL wanted to establish a low-price, local sorghum-based beer, the government cooperated by reducing the excise tax, first through an excise tax holiday and then by maintaining a rate of 20 percent for beer made from domestic sorghum.

Sales of Eagle Lager and Eagle Extra have soared from one million cases per annum in 2003 to nearly 10 million cases in 2015. However, NBL management feels there is still a large domestic market to capture. The company estimates that formal beer products are only capturing 4 to 5 percent of the total alcoholic beverage market, with home-brewed products and various hard alcohol drinks dominating the remainder of the large informal market’s consumption.


### TABLE 1: PRICES OF SELECTED NILE BREWERIES PRODUCTS

<table>
<thead>
<tr>
<th>Brand</th>
<th>Price/Bottle (Ugandan Schillings)</th>
<th>Price/Bottle (US$)</th>
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<td>Eagle Extra</td>
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<td>0.75</td>
</tr>
<tr>
<td>Nile Special</td>
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RESULTS

The development of the sorghum-based Eagle Lager and its related products under the Eagle brand has been a tremendous commercial success. Additionally, it has had positive impacts up and down the supply chain.

**Lead Firm: Growth of Nile Breweries Ltd.**

The introduction of Eagle Lager has had a dramatic impact on the growth of NBL and the demand for local agricultural products, particularly sorghum. A little over a decade ago, NBL imported all the raw materials for its brewed products from South Africa, Europe, and Australia. Now, NBL sources 70 percent of its brewing raw material locally. The company has also initiated a program to reduce the import of malted barley by sourcing from Ugandan farms located above 1,500 meters (the microclimate needed for barley production). As local barley production increases in the next few years with NBL’s support, the company plans to be able to procure 97 percent of its raw material locally.

The lower-cost, local raw material decreased overall production costs, and much of the raw material cost savings were passed on to the consumer. These lower-cost products of more uniform quality were able to compete with the traditional low-cost choice: homebrews. Nile Breweries’ gross income has increased steadily since the introduction of Eagle beer, primarily due to the sales of sorghum-based beers. In addition,
the company’s market share has risen from below 50 percent several years ago to 60 percent today. Based on these products’ success, NBL rolled out additional products in the Eagle brand family, such as Eagle Dark.

The increased demand for their products prompted an investment in 2013 of $90 million to build a new brewery with increased plant capacity. This investment created one hundred permanent factory jobs, and numerous indirect jobs in construction, transportation, distribution, and retailing. A 2015 independent study conducted by the U.S.-based Beer Institute, an industry association, found that for each job created in beer manufacturing, 34 indirect jobs are created in wholesaling, retailing, and other manufacturing and farming activities. Since beer manufacturing is more automated in the United States than in Uganda, the job multiplier effect is probably closer to 50 to 60 jobs per beer employee in Uganda.3 Additionally, the new factory’s increased capacity has further expanded the demand for sorghum and barley.

Growth of SMEs

Without the agro-processing SMEs to reach and organize farmers to supply the required raw material, NBL would still be a brewer of beer dependent on imported grains, junior to the leading brewer in the Ugandan market. Afro-Kai and AgroWays both played a key role in linking the sorghum farmers, and their eventual grower associations, to NBL. The majority of grower associations operate as crop aggregators, with a few emerging as separate agro-processing SMEs.

The expansion of the sourcing program beyond the target region and the growth of grower associations has allowed for specialization among NBL’s SME partners. Afro-Kai now focuses primarily on seed and input distribution for participating sorghum farmers, while AgroWays is the lead grain collection, processing, storage, and delivery entity. Nevertheless, NBL still maintains direct contact with the grower associations, meeting annually to establish quantity and pricing contracts, and to determine the extension services needed.

Increasing Farmer Income

The backbone of the program and the primary beneficiaries are the 20,000 farmers who have a reliable contract buyer for their production. Many farmers now rely on Epiripur production as their principal cash crop, an important source of funds to pay school fees. The production of a cash crop for NBL is important to the farmer. Furthermore, the knowledge gained from the Epiripur production package, such as good farming practices and the proper use of inputs and seed, can also be applied to corn and sorghum as a staple food.

Farmers are reaping additional benefits from the overall increased demand for sorghum, and seeing higher prices paid. Last season, the price per kilogram was 1,090 Ugandan schillings, while this season, the price is 1,240, representing a 12 percent price increase over a six-month period. Still, NBL is finding it hard to obtain all the supplies they want at this price.

NBL would like 10,000 metric tons of sorghum this season, but may only obtain 8,500 metric tons due to competition from other buyers. With NBL’s successful support of more organized, higher-quality grain production, buyers from surrounding countries and humanitarian aid groups are offering Epiripur producers even higher prices than those negotiated with NBL for their high-quality grain. The World Food

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Program is reported to be one of the largest single buyers of grain in Uganda. Sorghum, independent of variety, is a staple food crop, which humanitarian groups prefer to purchase locally. The net impact is that demand is outstripping supply.

More Opportunities for Women in Management

The Epuripur production program also encouraged women to form and lead farmer groups and associations. Information published by NBL indicates that:

- Women lead half of the top 10 farmer associations supplying sorghum.
- 30 percent of the sorghum supply chain’s farmer-suppliers operate under women-led groups.
- 26 percent of income paid by NBL goes to women-led groups.

Traditionally, women managed the local trade and sale of foodstuffs, while men typically managed the production activities. A number of women affiliated with the sorghum supply chain had been educated in schools. This combination of education and a background in sales provides an opportunity for women to become staff or managers in the associations. NBL has devoted additional resources to investing in the education of individuals, as well as providing extension and other capacity building services.

Expanding Corporate Social Responsibility

NBL has initiated social responsibility programs in the farming districts that improve the lives of small farmers. The actions generally fall into three categories:

- Health: HIV/AIDS education in concert with USAID programs
- Clean water: providing village wells
- Education scholarships: NBL has granted 63 all-expenses-paid scholarships to gifted primary school students from poor farming families so that they may study in prestigious secondary schools, which would have otherwise been too expensive.

The company believes these initiatives represent good corporate citizenship, but also have long-term payoffs in the form of building trust and commitment between the company and its supplier-farmers. By providing funding for secondary school, NBL is increasing the likelihood that rural children can access university education, which would not happen in rural areas without external assistance. In addition, the company is in a particularly advantageous position to deliver social programs because of their direct, established relationships with farmers and exposure to the needs of the community.

Rising Government Tax Revenues

The government of Uganda played an important role in the introduction of Eagle beer through the reduction of excise taxes on NBL’s sorghum-based beers. At this lower tax point, the price of Eagle beer is closer to that of homebrews, and thus more competitive with home-brewed products. Due in part to this lower price point, Eagle beer sales have been immense, generating considerable tax revenues for the government, with an estimated $70 million in excise and value-added taxes paid by the company. This figure makes NBL the second-largest Ugandan taxpayer.

Onapito Ekomoloit, corporate affairs director at Nile Breweries, describes the company’s relationships: “Nile Breweries is in partnership with both small farmers and the government. ... It is a win-win situation: We provide a reliable cash market for grain coupled with technical assistance for the farmers, and the government receives ever-increasing tax revenue from our success.”

The government is also anxious to bring the informal home-brewing and synthetic alcohol market into the formal economy, where it can be monitored and provide tax revenue. Since the government receives little to no taxes from the informal market for alcoholic beverages, any capture of that market by sales of Eagle beer gives the government the opportunity to collect tax revenue on previously untaxed activities. In addition, there can be serious health problems associated with the consumption of home-brewed products sold in markets and on the street, including recent reports of fatalities in Kenya from consuming such products. The government understands this situation and is eager to support NBL as it seeks new markets and sales opportunities for its beverages.
Looking Forward

Replication and Knowledge Spillovers

Two significant impacts have emerged from NBL’s successful sourcing of Epuripur, a new variety of sorghum.

While there have been other efforts to utilize sorghum as a raw material for beer and other alcoholic drinks, the commercial success of Eagle Lager at Nile Breweries is reinvigorating the development of similar products in other parts of Africa. NBL’s parent company, SABMiller, a leading global brewer and marketer, has initiated sorghum beer development projects in Zambia, Tanzania, and Swaziland, using the Ugandan model to source local supplies of sorghum and barley. Heineken Breweries is reported to be initiating plans for sorghum beer production in Ghana and Sierra Leone. Diageo (the distributor of Guinness throughout Africa) is pursuing locally sourced raw material through the production of a cassava-based beer in Uganda and the acquisition of rivals specializing in local product-derived beers.\(^4\) Success in these initiatives will drive increased revenue in rural agricultural production and in agro-processing.

Linkage Lessons Learned

Lesson 1: The relationship functioned best when the farmer associations functioned as SME processors.

The farmer associations tended to be loose groups, aggregating product from a large number of producers. However, some of the associations became strong organizations and built processing facilities to clean and store grain, functioning as full SME processors. These associations functioning as SMEs carried out light or more extensive processing, which provided a variety of benefits within in the value chain:

- An SME often has lower overhead and can provide a service at a lower cost than the lead firm.
- An SME better understands the local environment and its potential pitfalls, particularly in rural areas.
- SMEs expand and create jobs to support an agro-industry supply chain in related fields such as warehousing, transportation, retailing, finance, and banking. A consumer product, such as Eagle-branded beer, creates numerous jobs in the retail and entertainment sectors.
- An SME can provide specialized services that a lead firm prefers not to handle itself. Early in the project, Afro-Kai served as a seed supplier and grain buying service, without direct involvement by NBL in the procurement process. The 2006 harvest and the growth of formal farmer associations prompted NBL to contract AgroWays to provide buying, processing, and delivery services, while Afro-Kai continued its input provision role. This allowed NBL to focus on developing direct contact with grower associations on contract negotiation and the provision of extension services.

Lesson 2: Public policy can facilitate win-win situations for public and private benefit.

In this case, government tax policy (i.e., a reduction of the excise tax for the introduction of a new product) was a useful tool for creating new markets for the private sector. If the new markets expand, governments can see long-term benefits through significant increases in tax revenue.

Lesson 3: Each raw material supply chain must be evaluated to develop an optimum organization.

Working with a network of SME farmer associations, aggregators, and processors is a lower-cost model for sorghum production, and more efficient than the vertically integrated hub and spoke system utilized for barley. The barley supply chain was approached differently due to the need for large up-front investments in barley malting facilities, coupled with

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the fact that barley was a new crop for local farmers. Training programs and a demonstration farm were required to attract farmer interest and bridge the information gap. In contrast, while Epuripur was a new sorghum variety, farmers in a number of regions of Uganda have experience growing sorghum.

**Lesson 4: Demonstration and replication of success.**

Opportunities to transfer a successful crop or product model to another country or region is one of the easiest ways to create new enterprises and industries; indeed, this is now occurring with the development of sorghum and other local crop-based beers in a number of African countries.

**Lesson 5: Local market opportunities can be more attractive than export opportunities.**

Producing consumer products that satisfy existing domestic demand and taste preferences can become more important to an economy than export markets. Domestic markets in Africa are expanding, and will be important as incomes increase and demand expands for processed food products designed to meet local tastes.

**Lesson 6: The Role of Social Responsibility.**

Since NBL works at the village level with farmers through farmer associations, the company is aware of farm family needs. NBL initiated an independent social responsibility and support program. Founded on specific knowledge of local needs, such programs can be effective in providing direct, responsive support and sustaining the long-term relationship between the lead company and the farming communities. Although it is not a substitute for a strong commercial link, a modest amount of funding goes a long way in strengthening the supplier and buyer relationship and reducing conflicts.

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**Bibliography**


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<th>Organization</th>
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<td>Nile Breweries, Technical</td>
<td>Joseph Kalule</td>
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<td>AgroWays, Manager</td>
<td>Herbert</td>
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