

AN ANALYSIS OF WOMEN-LED ENTERPRISES IN THE MANGO VALUE CHAIN IN
EMERGING ECONOMIES: CASE STUDY OF AZURI HEALTH LTD. IN THIKA, KENYA

A Project Paper/Thesis
Presented to the Faculty of the Graduate School
of Cornell University
in Partial Fulfillment of the Requirements for the Degree of
Master of Professional Studies in Agriculture and Life Sciences
Field of International Agriculture and Rural Development

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May 2020

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ABSTRACT

This paper assesses a case study of the social-enterprise Azuri Health Ltd., a women-owned dried mango processor based in Thika, Kenya. A literature review and macro analysis of the mango value chain in Kenya provide a country-specific context in which to analyze the challenges women-led enterprises face. The literature review discusses general challenges faced by women in the mango value chain including issues of access to finance and technology. Additionally, the literature review explores key challenges reflected in the findings section which include barriers to participation in business activities, access to information and networks, risk of gender-based violence, and household and community care responsibilities (Aterido et al., 2013; Hoffman & Roscoe, 2016). An analysis of the findings reveals the need for a greater discussion about the effects of gender-based constraints on the composition of value chains. The analysis suggests development policies and company strategies should examine elements of women's participation and engagement at each segment of the value chain (Ros-Tonen et al., 2019), and should scrutinize the transactions and activities that take place at the junction of value chain segments to identify areas where women-led enterprises disproportionately accrue benefit losses.

BIOGRAPHICAL SKETCH

Marie was born and raised in Boston, Massachusetts with a multicultural heritage that has deeply shaped her studies and path in life. She attributes the development of her interests to the teachings of her creative father who emphasized environmental stewardship and her resourceful knowledgeable mother. Marie's interests are in food security, climate-smart agriculture, and local and global food value chains. Prior to attending Cornell, she worked as an agricultural extension agent with the Peace Corps in Madagascar. Her primary project focused on food security and nutrition. As a secondary project she worked closely with vanilla farmers helping establish private business partnerships with cooperatives. Marie graduated from Pitzer College in 2016 with a Bachelor of Arts in Environmental Analysis and a minor in Africana Studies. During her undergraduate studies she conducted field work in Botswana on human-wildlife conflict and worked as a field assistant on a certified Smithsonian Bird Friendly coffee farm in Nicaragua. In the Fall of 2019, she enrolled in the MPS program in International Agriculture and Rural Development at Cornell University.

I would like to dedicate this project paper to my mother. Thank you for your wholehearted support.

ACKNOWLEDGMENTS

I would like to express my deepest gratitude to my academic advisor Professor Louise Buck for her constant encouragement and guidance throughout this research process.

I also thank Professor Ndunge Kiiti my field research advisor. As the director of the Student Multidisciplinary Applied Research Team (SMART) Program, she led the two teams to Kenya. She developed a meaningful and informative research project that engaged many remarkable Cornell faculty, field advisors and hosts to whom I owe the experience. A special thanks to Tei Mukunya and her team at Azuri Health Ltd., as well as, Tim Mulandi, Ndirangu Warungongo, and Robert Kioko. Thank you to Dr. Marvin Pritts, our faculty advisor at Cornell and Pete Ondeng, our field advisor in Kenya.

My gratitude is also extended to Professor Ralph Christy, the founder and director of the Emerging Markets Program (EMP), for his assistance in framing this research project at its conception. My appreciation also goes out to my teammates on the Kenya SMART research team – Adi Menayang, Lindsey Turk, and Trin Kitisoontornpong.

I would also like to thank the MPS Department heads Lori Leonard and Terry Tucker for their review of this project and the support from the Department of Global Development at CALS.

Finally, I wish to thank my parents, siblings, and dedicated partner for their unwavering support and encouragement throughout my studies.

This research was made possible through the support of the Student Multidisciplinary Applied Research Teams (SMART) program within the Emerging Markets Program (EMP) in the Charles H. Dyson School of Applied Economics and Management at Cornell University. In Kenya, many thanks to the host company—Azuri Health Ltd., Tei Mukunya (CEO), her staff and partners, and other stakeholders who supported the SMART team while in-country.

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LIST OF ACRONYMS

CGIAR — Consultative Group on International Agricultural Research

COMESA — Common Market for East and Southern Africa

EAC — East African Community

ECOWAS — Economic Community of West African States

EU — European Union

FAO — Food and Agriculture Organization of the United Nations

FPEAK— Fresh Produce Exporters Association of Kenya

GBC — Gender-based Constraints

GDP — Gross Domestic Product

GSVC— Gender-sensitive Value Chain

HCDA — Horticulture Crop Development Authority

IFC — International Finance Corporation

ITC — International Trade Center

JKUAT— Jomo Kenyatta University of Agriculture and Technology

KARI — Kenya Agricultural Research Institute

KIRDI — Kenya Industrial Research and Development Institute

MALF — The Ministry of Agriculture, Livestock and Fisheries

NGO — Non-governmental Organization

R&D — Research and Development

ROIC — Return on Invested Capital

SMART — Student Multidisciplinary Applied Research Team

SME — Small-Medium Sized Enterprises

SSA — Sub-Saharan Africa

VC — Value Chain

MFI — Microfinance Institutions

CHAPTER I

INTRODUCTION

Mangoes are one of the most important fruit crops in tropical and subtropical lowland regions worldwide. The agro-ecological conditions in Kenya are well suited for the production of mangoes (Griesbach, 2003). For centuries, mangoes have been cultivated on a small-scale in the Coast Province region of Kenya. Since the beginning of the millennium, the production of mangoes in Kenya has increased significantly, with the volume of production tripling, and a reported 400% increase in mango exports due to the development of locally adapted and improved mango cultivars, the use of fertilizers and pesticides, irrigation, and crop husbandry (Mujuka et al., 2020; Grant et al., 2015). Most mangoes grown in Kenya are produced by smallholder farmers and are a critical source of income for farmer livelihood strategies. In addition to providing a viable source of income to smallholder farmers, the fruit is highly nutritious and contains almost all of the known vitamins and many essential minerals (Griesbach, 2003). Despite the high nutritional value of the crop, its contribution to income generation for smallholder farmers, and its rapid growth in the horticulture sector of Kenya, there is still little information available on the dynamics of the mango industry and the financial performance of the key actors in the value chain. Because this crop is important in both global and domestic value chains, with 98% of mangoes traded domestically, it is critical to understand both value chain mechanisms in the context of Kenya (Msabeni et al., 2010; Mutonyi, 2019).

Kenya, like many emerging and developing economies, is seeing a rapid increase of urban incomes and a growing middle-class provides opportunities for both urban and rural economic growth

(Reardon, 2015). This rapid economic growth can also be seen in the transformations throughout the value chain and in processing, wholesale, and logistics through the emergence of small to medium-sized enterprises (SMEs) (Reardon et al., 2013). However, despite major growth in the agricultural sector, smallholder farmers and SMEs continue to have limited market opportunities resulting in high transaction costs and imperfect market systems (Mutonyi, 2019), likely with disproportionate impacts on women-led enterprises. Recent studies show that this growth linked with improved institutional policies may be contributing to the closing of gender divides in terms of access to financial services in many countries. However, the challenges women face as entrepreneurs and value chain actors remains laden with high barriers to overcome in the mango industry, among many other agricultural-based industries (Aterido et al., 2013).

This paper examines mango value chains in Kenya and analyzes the role of women-led enterprises and SMEs within the value chain. The paper begins with an overview of the mango value chain throughout Africa and then analyzes the macroeconomic factors influencing the mango industry in Kenya and the organization of the mango value chain. It then delves into a case study of the social-enterprise, Azuri Health Ltd. Following case study excerpts and data collection findings is a discussion of the challenges faced by women-led enterprises in the mango value chain using a gender-sensitive analysis approach.

CHAPTER II

THE MANGO INDUSTRY IN AFRICA

Background

The mango (*Mangifera indica* L.) has worldwide significance as a major food and cash crop. Mango is one of the most important tropical fruits in terms of cultivation, production, and nutritional value (Ntsoane et al., 2019). Popular both economically and culturally, mango is extensively cultivated in the tropical and subtropical regions of the world (Sivakumar et al., 2011).

Cultivation Practices

The mango tree, an arborescent evergreen belonging to the Anacardiaceae family, has its center of origin in the tropical rainforests of South and Southeast Asia (Litz, 2009). Most mango producing countries are located in the tropics and subtropics (37° North latitude to 33° South latitude) (Petruzzello, 2019). Smallholder farmers account for most areas where mango cultivation is the main source of income (Zhang et al., 2019). Production is limited by biotic and abiotic factors that are often beyond the capacity of smallholder farmers to manage with major constraints including shortages of agricultural production assets, such as; labor, land, knowledge, and access to technologies (Zhang et al., 2019). Overall, mango cropping systems have a low degree of mechanization, and traditionally can be grown in orchards or using mixed cropping agroforestry systems depending on regional preferences (Borish et al., 2017). The conditions suitable for mango growth include moderate cold winters to induce abundant flowering, warm spring to favor good fruit set, warm summer and fall season to encourage good fruit development and vegetative growth after harvesting with minimal temperature fluctuations from day to night (Galán Saúco, 2018).

Production

Commercial mango production occurs in more than 87 countries (Sivakumar et al., 2011). Asia is the largest mango producing region with 34.6 million tons produced per year. This accounts for 74.30% of global mango production (Ntsoane et al., 2019). The Americas follow with 4 million tons (13.00 %), Africa 3 million tons (11.00 %), and Oceania at 0.04 million tons (0.10%) (Ntsoane et al., 2019). By country, India, China, and Thailand account for the highest production of mangoes (Pariona, 2018). The dominant commercial cultivars are; ‘Tommy Atkins’, ‘Haden’, ‘Ataulfo’, ‘Kent’, ‘Keitt’ and ‘Alphonso’ (Lawson et al., 2019). However, the highest yielding mango crops are produced in the subtropical country, Israel (Galán Saúco, 2018). A major hindrance for mango producing countries to reach lucrative export markets is the prevalence of the invasive fruit fly (*Bactrocera dorsalis*). In recent years, trade has been hampered between the United States (U.S.) and Africa because of the U.S. Federal order ban on the importation of several fruit and vegetable crops where fruit fly infestations have been reported (Muriithi et al., 2016). As a result of pervasive fruit fly damage to overall yield, many farmers in the tropics including in Kenya, have relied mainly on synthetic chemical pesticide to control insect pests, the misuse and overuse of which can lead to high health and environmental costs (Muriithi et al., 2016).

Nutritional Value

The fruit of the mango contains amino acid, carbohydrates, fatty acids, minerals, organic acids, proteins and vitamins (Maldonado-Celis et al., 2019). Mangoes contain bioactive compounds that contribute to the antioxidant and nutritional properties of the fruit including, vitamin C, β -carotene and polyphenols (Sivakumar et al., 2011). The β -carotene supply found in mangoes, the predominant carotenoid contributing to the highest vitamin A activity, can provide a source of

nutritional security in tropical and subtropical regions (Maldonado-Celis et al., 2019). Particularly, vitamin A deficiency is a major challenge in sub-Saharan Africa (SSA) making the consumption of mangoes critically important as β -carotene is a precursor for vitamin A (Ntsoane et al., 2019).

The Mango Industry

Mangoes are a significant contribution to the socio-economic wellbeing of fruit value-chain actors in SSA (Adams et al., 2019). Many emerging economies and developing countries throughout Asia and Africa are seeing an increased demand for high value agricultural produce, like mango, with the growth of middle-class households (Altendorf, 2019). As a result of rapid urbanization and increased incomes, a transformation in the middle segments of the value chain through SMEs (processing, wholesale, and logistics) has encouraged the growth of the agricultural sector in some countries in Africa including; Kenya, Nigeria, Ethiopia, Zambia, Zimbabwe, Senegal, South Africa, Mozambique and Ghana (AGRA, 2018). In many countries throughout SSA, smallholder agriculture makes up 70% of food production (Ricciardi et al., 2018). With smallholder farming as a main livelihood strategy for so many farming households, supporting related activities is seen as a key pathway for achieving the development of rural economies (World Bank, 2007).

Despite major growth in the agricultural sector in many of these countries, smallholder farmers and SMEs continue to have limited market opportunities resulting in high transaction costs and imperfect market systems (Mutonyi, 2019; Barrett, 2008). To ease issues of market access non-governmental organizations (NGOs), donor agencies and governments have increased their involvement in producer market groups to promote the inclusion of smallholder participation in emerging markets (Mutonyi, 2019). Studies of the mango value chain in Kenya found collective

action to have a significant impact on improving the welfare of smallholders—contributing to poverty reduction and economic growth (Markelova et al., 2009). Other studies have indicated collective action through producer organizations can help smallholders access domestic urban markets through increased economies of scale, enhanced bargain power, and access to certification and labeling opportunities (Mutonyi, 2019).

Despite overall growth in the mango industry, value chain actors experience many challenges including the high cost of production, high taxation, low quality and quantity for marketable produce, and the rising threat of insect pest damages specifically the invasive fruit fly species *Bactrocera dorsalis* (Githiomi et al., 2019). Additionally, the future of this industry will be greatly defined by value chain actors' ability to address post-harvest loss issues and climate change.

Postharvest loss

As a highly perishable crop, the actors in the mango industry face a myriad of postharvest loss challenges at every juncture of the supply chain. Mangoes require coordinated activity by growers, storage operators, processors and retailers in order to maintain quality standards and minimize food loss and waste (Mahajan et al., 2014). Despite the development of a wide range of postharvest technologies aimed at reducing production losses, these technologies often remain expensive at a commercial scale, inaccessible or unadaptable in many SSA countries (Kumar & Kalita, 2017; Mahajan et al., 2014). In Kenya alone, postharvest losses from mangoes are estimated at 40-50% (Mujuka et al., 2020). The management of postharvest loss has the potential to reduce fuel costs, transport-related pollution, and energy consumption in the supply chain resulting in environmental

and human benefits, while reducing costs for value chain actors can increase profit margins and decrease food prices for consumers upstream (Sheahan & Barrett, 2017).

The Dried Fruit Industry

A dried fruit product is one in which the majority of the water content of the fruit has been removed naturally, through sun drying, or through the use of electric dryers or dehydrators. Drying fruit is a form of value addition for producers, processors and manufacturers. Value added approaches for dried fruit include dried fruit chips and powders. The supply of mangoes is seasonal and is characterized by gluts during peak periods and high instances of wasted fruit before reaching consumers, making the dried fruit industry susceptible to challenges of seasonality (Adams et al., 2019). In Ghana for example, 50% of the harvest in the country is not consumed or traded due to the high perishability of the fruit, poor postharvest handling, and a lack of low-cost post-harvest management techniques (Reddy & Kumar, 2010). These losses significantly impact the income of fruit producers and their communities. Making it more challenging for farmers, the industrial capacity of most mango producing countries in SSA remains low. In Ghana, Adams et al. (2019) finds low investment in post-harvest management of fruit may be impacting the high capital costs to establish processing firms with few large-scale firms existing. In addition to the high capital costs of establishing a firm, food safety standards for products like juices and pulps are usually beyond the capacity of small-scale business operators, who in the case of Ghana dominate the industrial sector (Adams et al., 2019).

CHAPTER III

WOMEN-LED ENTERPRISES & ENTREPRENEURS IN THE MANGO INDUSTRY

Women-led Enterprises and Entrepreneurship

Throughout SSA, the majority of economically active women work in the agricultural sector as producers, traders and processors (CTA, 2017). Aterido et al. (2013) argue that limited access to financial services is an impediment for female entrepreneurs in the agriculture sector and further creates barriers for women to participate in the modern market economy—therefore, gender differences in the access and use of financial services can have negative impacts on the overall economy (Aterido et al., 2013). Additionally, Aterido et al. (2013) find that even as gaps in the gender divide are closing in many countries in terms of access to financial services, the challenges women face as entrepreneurs go beyond issues of finance and capital. They have also to do with participation and the fact that female entrepreneurs have to overcome higher barriers in the first place. Some of these barriers are met throughout the value chain where women have limited access to information and networks, hired labor, access to technology, assets and restrictions on land ownership, violence, and household and community care responsibilities (Hoffmann & Roscoe, 2016).

New findings in SSA suggest women are likely to drive agricultural innovation in the future. This future looks different from the past direction of agriculture in a few keyways with the profile of the future African farmer as an “informed business leader” (CTA, 2017). This new African farmer is now seeing the emergence of government and investor promoted woman-led agribusiness firms, the adoption of cultivation practices that grow diverse crops utilizing intercropping, rotation and/or

agroforestry, the increased accessibility of financial services, access to profitable markets, and the use of new vital technologies (CTA, 2017).

Women in the Value Chain

Agricultural value chains are heterogeneous within countries as well as from country to country, however common trends of what roles women play in these value chains can be identified in SSA. Common trends in the differences observed in the value chain throughout Africa include women playing a significant role in the production, post-harvest processing and determination of the size and quality of final commodity products (Hoffmann & Roscoe, 2016). These segments of the value chain are often in the informal economy. They are also frequently not acknowledged and under-resourced with women filling the bottom of the pyramid in the segmentation of the informal economy (Chen, 2007). However, upstream in the value chain— the most profitable portion—in commercial sectors, transportation, marketing and sales, women are grossly underrepresented (World Bank, 2014).

Working under a strong body of evidence that suggests gender-smart solutions in agribusiness can improve the productivity and profitability of agriculture value chains, the International Finance Cooperation (IFC) World Bank outlines gender-smart solutions and investments to engage the private sector. Gender-smart solutions are development strategies that focus on different stages of the value chain including; input provisions, production, post-harvest processing and storage, transportation, and marketing and sales (Hoffmann & Roscoe, 2016).

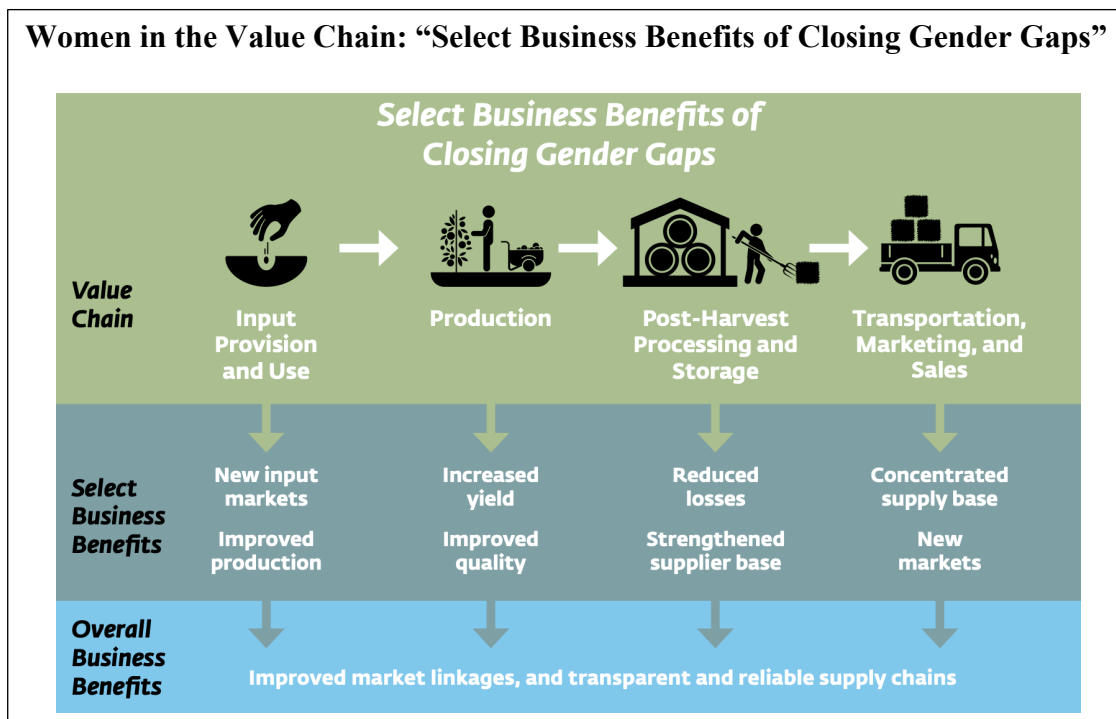


Figure 1. Women in the Value Chain: “Select Business Benefits of Closing Gender Gaps.” Reprinted from “Investing in Women along Agribusiness Value Chains” by Hoffmann & Roscoe, 2016.

However, the potential benefits of women participating or closing the gender gap in agriculture value chains is often determined by women’s access and control of productive resources and decision-making at the household level (Coles & Mitchell, 2011). As outlined by Oduol et al. (2017), the more commercialized and better developed value chains demand different upgrading strategies for different typologies of women. For example, while female headed households may require targeted financial products to support their work, women in male headed households may need institutional gender-sensitive policies in order to achieve chain upgrades (Oduol et al., 2017).

Challenges for Women in the Mango Value Chain

According to the International Trade Center, in the Economic Community of West African States (ECOWAS) countries, women’s roles in the mango value chain include involvement as unpaid

family labor, paid workers in packaging and processing facilities, or small entrepreneurs of small processing units. Similarly, to agricultural value chains as a whole, women in the mango value chain are underrepresented as entrepreneurs at most levels of the sub-sector with a low percentage of small farmers, farm owners, exporters and commercial processors (ITC, 2011). According to the ITC, constraints driving this gender divide include gender inequality in access to land (land tenure); unequal access to education; unequal access to credit, financial services and agricultural extension services; women's responsibility of domestic work and childcare, and cultural attitudes around the gender roles of suitable women's work.

Throughout the value chain, despite the myriad of obstacles women stakeholders must overcome to be successful, two areas are particularly challenging for women in the mango industry in Kenya. The following section looks at the challenge of food waste in the mango value chain and how it relates to inadequate access to technology for women. This is followed by discussion on how the limited availability of inclusive financial services and limited access to credit impact women-led enterprises. These challenges will also be examined further within the context of the case study presented in Chapter V.

Food Waste & Technology

Postharvest losses in the mango value chain in Kenya are estimated at 40-50% (Mujuka et al., 2020), making the management of food waste the most critical component of the value chain. Adaptive technology to reduce food waste at every level of the mango value chain is thus seen as a solution to this extensive issue. However, access to technology is seen as a major area in which women value chain actors are met with unequal access and limited availability of potentially

impactful technologies. In terms of mango production in female-led households technology uptake remains generally low. Coincidentally, the use of technology for female-led enterprises also remains low (FAO, 2018). Before discussing why these challenges persist it is important to understand where in the value chain technology and post-harvest losses converge.

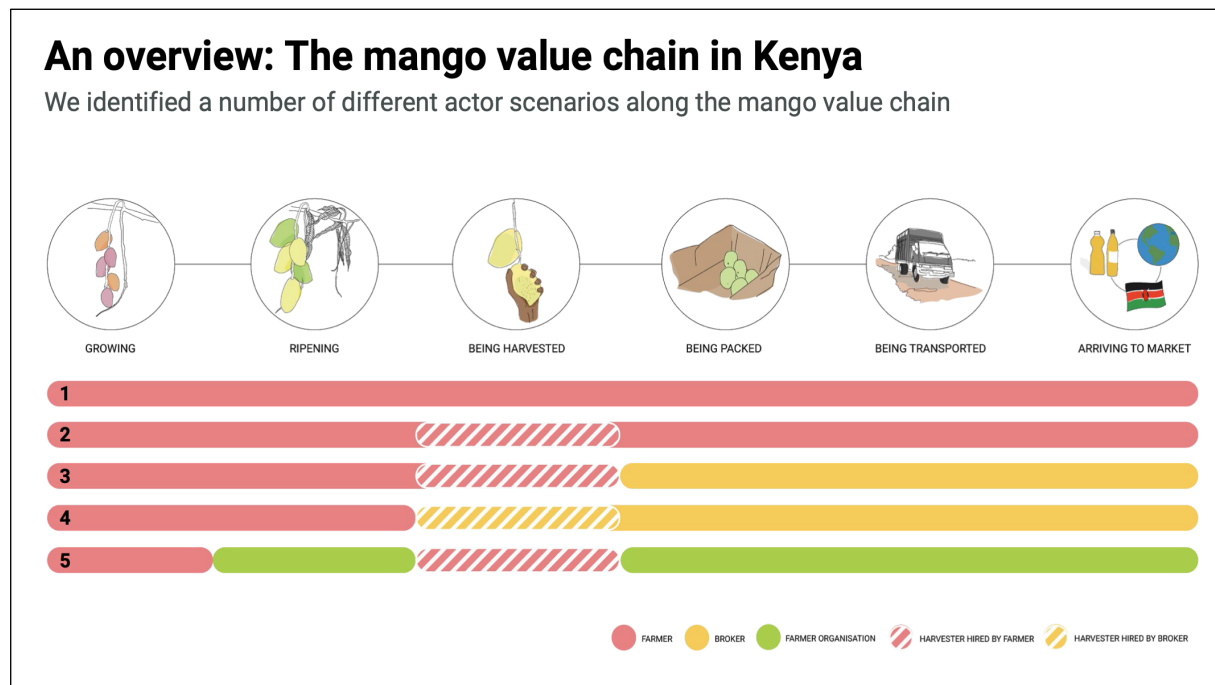


Figure 2. An overview: The mango value chain in Kenya. Reprinted from “Increasing Access to Post Harvest Technologies to Women Farmers” by Osborne et al.; SEI & Expedition Mondial, 2017.

Farm Inputs

The Food and Agriculture Organization’s (FAO) “Food Loss Analysis: Causes and Solutions” (2018) describes the role of technology in the farm input or growing section of the mango value chain. They state, orchard or mixed cropping system management of mangoes typically involves farmers nurturing and pruning trees, fertilizing before harvest, and managing pests and diseases. Challenges for farmers include climate variation (drought and extreme temperatures or precipitation events), the price of inputs (fertilizers or pesticides) and their expiration dates, and

the limits of fruit fly traps (FAO, 2018). The access to input technologies can help improve productivity, however not all technologies are suitable or necessary for the means of production. For example, chemical fertilizers can be expensive relative to the income generated from the sale of mangoes, have limited shelf-life and may cause fruit to grow too rapidly resulting in cracking. Whereas, organic methods (i.e. manure), which is often a free alternative, is more suitable for soil conditions in mango producing regions in Kenya (FAO, 2018).

Harvesting tools

The most critical factor determining post-harvest loss management is the harvesting process (FAO, 2018). Fruit should be harvested when they are at the mature state on the tree, although many farmers harvest fruit at the premature stage to capture early market opportunities (FAO, 2018). For example, in Kenya 25% of the crop is lost during harvesting alone, which is double that of the presumed losses in India where 10% is said to be lost during harvest (FAO, 2018; Osborne et al., 2017). FAO (2018) explains, harvesting techniques heavily influence the amount of harvest lost or preserved. In many regions throughout India, farmers harvest mango using a long pole with a net basket and blade at the end. Alternatively, a worker may climb the tree and handpick the fruit, which is then tossed down to another worker. This technique can leave up to 5% of the fruit mechanically damaged (FAO, 2018).

During the harvest period in Kenya, farmers and their families often harvest the fruit themselves. However, more commonly, it is the broker who brings his/her harvesters to the farm or hired workers to do the job (Osborne et al., 2017). When the demand for quality is higher (often for the export market), the fruits are picked by hand with homemade harvesting tools. However, for local

markets and the processing industry, time saving techniques like tree shaking are used to harvest (Osborne et al., 2017). This technique can lead to significant fruit bruising and leaving it on the ground can expose it to common sources of infection (FAO, 2018; Osborne et al., 2017).

The benefits of good harvesting tool technology are the most observable when quality drives the market demand. These technologies can prevent fruit damage and enable farmers to pick on their own, saving money from cost of hired labor. However, harvesting tools can be expensive and can require frequent repairs, it is a non-selective technique, can spread sap, and require higher labor intensity (Osborne et al., 2017).

Post-Harvest Shipment

Coordinated logistics and procurement is done through the negotiation of farmers, brokers and buyers. Depending upon the market, fruits are sorted, packaged accordingly and distributed to different locations using diverse methods. Farmers often grade the fruit themselves and bring them to the marketplace using bags or cardboard boxes by bicycle, *boda boda* (transport motorcycles) or local transport (Osborne et al., 2017). When brokers are involved, they will do sorting at designated collection points and coordinate transport, often including that cost when purchasing the fruit from farmers. Rejected fruits are returned to farmers for home consumption or for sale in local markets.

The use of crates is a technology that can help prevent fruit damage and food loss during transport from farm to buyer. The benefits of using crates is that they are durable, multipurpose, allow for fruit aeration, and preferred for maintaining a high quantity order. However, crates take a

significant amount of space and are hard to carry especially if bicycles or *boda bodas* are used. Where fruit quality doesn't matter, often in the processing sector, crates propose no financial or functional added benefit.

Value Addition

Value addition of fresh mangoes to dried products, pulps and juices has been identified as a way to extend the shelf life of the mango fruit and to achieve added economic benefits from transformation. Fruit selection, food safety and preparation are key factors in processing mango for value addition (FAO, 2018). Women make a huge contribution to the informal sector and have transformed food products for centuries. However, for women, the specific support to improve market-oriented production, value-addition, and agribusiness activities remains low (FAO, 2020). As a result, governments and international organizations have tried to bring women into the value chain by enabling the environment for gender-sensitive value chains (FAO, 2020). This pathway is one that can increase profit margins of production in a substantial way for women value chain actors in the agribusiness landscape by helping companies understand the impact of gender dynamics on their businesses to identify key areas of loss, inefficiencies and opportunities.

Financing & Access to Credit

Throughout countries in Africa, an ongoing challenge faced by SMEs and rural enterprises throughout countries in Africa is the access to financial services and credit. Empirical research has shown that access to improved finance plays a crucial role in helping SMEs (or firm growth) to overcome liquidity constraints allowing them to increase growth and investment opportunities (Beck et al., 2005; Morsy, 2020). In many counties when financial services are available, they are

dominated by unlicensed money lenders who can take advantage of the market gap by charging exorbitantly high interest rates (Mullineux & Murinde, 2014). In order to provide better alternatives for those who are financially excluded, initiatives such as microfinance institutions (MFIs) and mobile banking have been employed to fill the gap (Napier, 2011). To encourage lending to SMEs, microfinance and other inclusive financing schemes are often subsidized through government loan guarantees in order to reduce bank credit risk for lending to high risk populations (Mullineux & Murinde, 2014). This system allows targeted loan guarantees to be catered to specific economic sectors with an emphasis on social policies particularly for historically excluded ethnic groups, deprived urban areas, and women (Mullineux & Murinde, 2014). However, despite the efforts of these institutional schemes, the challenges faced by women in terms of access to finance and credit persist.

Morsy (2020) suggests that women are critical contributors to the quality and direction of overall global development, therefore gender gaps in society have a significant negative impact on economic and social development. In one study, Morsy (2020) found that women tend to be more credit-constrained than men and excluded from formal banking systems. Yet, large bodies of literature have focused on financial exclusion overall, omitting the obstacles faced specifically by women. The commonalities found in the study have been identified as barriers to financing. This includes, the countries' level of economic development, the quality of institutions and financing infrastructure, the degree of credit information sharing, and the ownership of banks (state-owned versus foreign owned) to name a few (Morsy, 2020). However, studies that focus on women and the gender gap reveal barriers to financing that go beyond these overall challenges. They look

deeper into the impact of dimensions beyond the use of financial services (Demirguc-Kunt et al., 2013; Aterido et al., 2013).

Aterido et al (2013) found that gender gaps in education, income level, formal employment, and being head of the household were key dimensions influencing gender gaps in nine countries in SSA. Studies have also found access to finance for women is affected by legal discrimination against them and overall gender norms (the level of violence against women and early marriage) (Demirguc-Kunt et al., 2013).

In order to understand the underlying factors of gender gaps, Morsy (2020) used the World Bank Global Index database for 141 countries to analyze socio-economic variables reflecting women's participation in the formal financial sector. Morsy found that women are likely to be excluded from the financial sector in countries where, "(i) foreign-owned banks have smaller presence as a share of total banking assets; (ii) state-owned banks have a bigger share in the banking system; and (iii) credit information is less available through public and private credit registries, and (iv) gaps between women and men in educational attainment are large" (p. 7).

These findings take into account the multidimensional nature of barriers women face in accessing financial services and credit that may begin long before a women's demand for such services is established. The case study of Azuri Health Ltd. presented in Chapter V will demonstrate how challenges discussed in the literature review affect the company's performance. It is important to remember that access to financing and credit along with the dimensions of gender gaps are heterogeneous elements that will look different from country to country, region to region, and

within communities. Therefore, the solutions to addressing this problem will need to go beyond the scope of accessing financial services and possibly look at services for insurance and savings, as well social policies aimed to empower women (Dupas & Robinson, 2013).

CHAPTER IV

THE MANGO VALUE CHAIN IN KENYA

This chapter examines the macroeconomic factors influencing the mango value chain in Kenya. It also looks at the microeconomic factors influencing the organizational structure (the market structure, conduct, and performance) of agribusinesses in the mango industry. The table below illustrates the chapter subsections.

PART I. Macroeconomic Analysis of the Mango Industry in Kenya

The Policy Environment

The Kenyan government has established laws and regulations to govern the horticulture sector which mango production is a part of (Grant et al., 2015). The political environment of the mango industry is influenced by land tenure, food safety requirements, trade regulations, and governmental support services.

Land Tenure

Land tenure and security remains a challenge affecting small-scale mango growers in Kenya. Land ownership in the mango-growing areas is often on ancestral land or communal and jointly managed land that lacks formal land titles (Grant et al., 2015). According to Grant et al. (2015), without land tenure, investors are faced with difficulty in purchasing or leasing land over long periods of time and thus have trouble accessing capital from banks to secure returns on investment. Ros-Tonen et al. (2019) find, that market integration development efforts sometimes have ‘adverse inclusion’ issues where structural market, tenure conditions, and farmers limited access to assets can lead to

value chain participation without material gains and accumulation. This has even greater effects on women's ability to participate and benefit from value chains.

Food Safety Requirements

Mango growers in Kenya must compete in a global market that is governed by rigorous standards for safety and social accountability (Grant et al., 2015). The Kenyan government has consequently developed KenyaGap with GlobalGap to promote the acceptance of Kenyan produce in the world export market. Under the scope of these initiatives, Kenyan mangoes should only be exported from farms certified by Horticulture Crop Development Authority (HCDA), and the Fresh Produce Exporters Association of Kenya (FPEAK) to meet minimum international standards (Grant et al., 2015). Therefore, the cost of implementing and maintaining compliance and certification for both producers and exporters, favors larger businesses over SMEs due to the complex barriers and underlying issues that prevent compliance with regulatory requirements (Yapp & Fairman, 2006).

Trade Regulations

Kenya has taken major steps in developing programs and agreements to reduce barriers to entry into international markets by enhancing trade with a particular focus on regional trade agreements with; the East African Community (EAC), the Common Market for East and Southern Africa (COMESA), and the European Union (EU) (Grant et al., 2015). Regulations on cross-border trade continues to be a market entry barrier that affects suppliers' involvement in domestic markets due to their impact on the importation of raw materials and in terms of proximity to markets effected by infrastructure conditions (Kamau et al., 2019). Besides key trade agreements, The Ministry of Agriculture, Livestock and Fisheries (MALF) is present in the horticulture sector and provides

extension and advisory services for production support to smallholder farmers, however, the delivery of these services has been reported to be weak and often unavailable to farmers in rural areas (Grant et al., 2015).

Governmental Support Services

In recent years, the government has partnered with many non-governmental organizations and development agencies to establish support services to strengthen sustainable sector value chains. Programs emphasizing partnership building focus on providing technical advice, financial assistance, capacity development and business linkages to actors along the supply chain (Grant et al., 2015). These government programs attempt to bring smallholder farmers into inclusive and sustainable value chains by encouraging private sector engagement. This has led to the rise in the presence of major multinational corporations acting in the mango value chain in Kenya. In 2010, the Bill & Melinda Gates Foundation hosted an alliance with Coca-Cola and TechnoServe to bring 50,000 smallholder mango and passion-fruit farmers into Coca-Cola's processing operations (Grant et al., 2015). However, it is important to note that supply chain integration can lead to path dependency where different partners along the supply chain become reliant on each other (Mutonyi et al., 2018).

The Economic Environment

Worldwide mangoes are produced in over 90 countries. Asian countries account for about 77% of global mango production, the Americas produce 13%, followed by African countries accounting for 10% of the global production (UNCTAD, 2011). Kenya is ranked second to Nigeria in mango production in Africa and contributes 1.7% of global mango production (Grant et al., 2015). In the

global value chain, export prices for mangoes, mangosteen, and guava reflect seasonal fluctuation in supply and demand as they do domestically (Altendorf, 2017). Mangoes are produced in almost all of Kenya's regions, with most mangoes consumed fresh within the country (Kehlenbeck et al., 2012). Grant et al. (2015) posit that the increase in the supply of mangoes throughout the country has been prompted by an increase in the local demand for food contributing to higher farmer net profit margins. Further, it is suggested that the development of alternative market channels for processing, as well as “fresh fruit parlours,” have increased corresponding to the national trend of the growing purchasing power of an increasing Kenyan population (Grant et al., 2015).

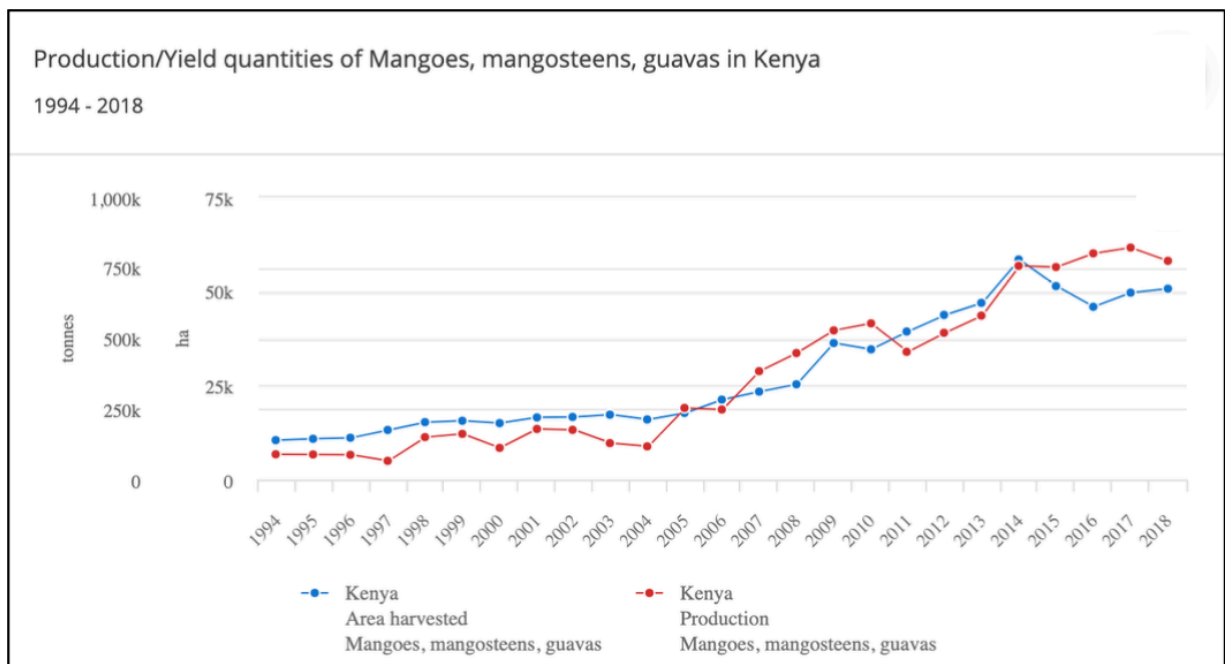


Figure 3. Production/Yield quantities of Mangoes, mangosteens, and guavas in Kenya, 1994-2018. Data from the Food and Agriculture Organization of the United Nations, 2020. FAOSTAT statistical database. [Rome]: FAO.

The Social Environment

In East Africa, Kenya ranks the highest in the Human Development Index. Kenya's entrepreneurship and human capital give the country a high potential for future growth, job creation and poverty reduction due to the major progress the country has made in terms of financial

deepening and financial inclusion (Kimenyi et al., 2015). Despite steady growth of the Kenyan economy, the distribution of wealth remains highly unequal. Geographic location particularly affects the distribution of wealth. For example, coastal regions receive the fewest resources and poverty remains the highest in arid and semi-arid rural areas (“Empowerment of Women,” n.d.). Rapid urbanization and population growth (with more than 70% of people under the age of 30) partnered with expansion of telecommunications and financial services are elements significantly affecting the social fabric of Kenyan society, today (Kimenyi et al., 2015; “Empowerment of Women,” n.d.). Despite a rise in the country’s GDP per capita (USD), which is estimated to grow to \$2,294 in 2021 from \$1,608 in 2017, unemployment and poverty continue to be widespread with an estimated 40% of the population living below the poverty line (WEO, 2020).

Consumer Behavior

According to recent surveys, the affordability of brands is the top factor affecting consumer purchasing decisions in Kenya. Brand loyalty, product labelling and packaging are also key factors affecting consumer habitats in Kenya (“Kenyan Market,” 2019). Nearly 70% of people in Kenya do their daily shopping through the informal sector, and Kenya is the second largest formal retail sector in Africa (“Kenyan Market,” 2019). Accordingly, consumer packaged goods account for 30% of monthly household spending (“Kenyan Market,” 2019).

Urban and rural consumers are very different in Kenya. In urban areas, consumers rely on online search engines to make more informed purchase decisions and pay closer attention to labels. M-commerce, the use of mobile payments to shop has tripled in the past two years (“Kenyan Market,” 2019). People in urban areas are also often multilingual and well-educated and have access to

formal banking systems and mobile banking. Together, these factors make Kenya's consumers the fastest growing retail market in Africa ("African Consumer," 2016). This fast growing market, and the number of wealthy individuals which are likely to grow, make Kenyan markets suitable for high-end luxury segments. However, high inflation rates and the rise of food prices may also make consumers cautious ("Kenyan Market," 2019). In rural communities, studies by Keding et al. (2017) studies find mangoes rank second to oranges in the perception of the best for consumption. Mangoes rank high in taste preference, ease of availability, and resistant to harsh weather conditions. Although people in rural communities may enjoy mangoes, a lack of disposable income means farmers in rural areas likely produce their own fruit for personal consumption and do not purchase them (Keding et al., 2017).

The Technological Environment

One of the fastest growing sectors in Kenya is the technology sector. Kenya has become a center for telecommunications innovation with mobile phone-based financial services playing a key role in the countrywide economic growth and increased employment opportunities (Kimenyi et al., 2015). Kenya has some of the highest internet access rates in sub-Saharan Africa, while the rise of 4G/LTE services and the proliferation of the smartphone has made e-commerce, e-based services and other innovations more accessible ("Kenyan Market," 2019). The growth in the technology sector has thus influenced other areas of the Kenyan economy.

M-Pesa

Mpesa, a mobile phone-based money transfer system established in 2007 and adopted country wide, has changed the landscape of commerce in Kenya and has been adopted country wide (Gikunda et

al., 2014). The impact of this technology cannot be understated, and studies have shown a positive correlation between M-Pesa and the creation of employment, access to credit facilities, income generation, and social capital between families and friends (Gikunda et al., 2014). M-Pesa has also given rise to a variety of other mobile phone-based innovations. The development of M-Farm, a mobile phone-based market information and trading service, provides up-to-date market prices and information via an app or SMS directly to farmers. The service also connects farmers with buyers directly, cutting out the conventional middleman (Solon, 2017). This technology being used by many farmers will likely affect the transparency and information available to mango growers throughout the country and may affect the movement of products along the value chain if the role of middlemen is reduced.

Mechanization

Despite an increase in demand for mangoes in regional markets throughout Kenya, crop losses remain one of the greatest challenges' farmers face. It is estimated farmers lose 40 – 45% of their crop because of poor harvesting, post-harvest handling techniques, and pest and disease (“Africa Renewal,” n.d.). Development organizations have tried to address this issue through the promotion of technologies like the new multi-food processing machines developed by United Nations (UN) Women Africa (“Africa Renewal,” n.d.) Other innovations focus on the improvement of agronomic technologies and the use of cultivars to increase production and productivity.

PART II. Organization of the Mango Value Chain

Market Structure

The market structure in fruit industry is analyzed based on the number of buyers and the sizes of enterprises within the value chain, the actors and their function in the value chain, the degree of market transparency, the conditions of entry and exit, and the domestic and export market conditions (Mateows, 2015; Chay et al., 2019). The figure below shows the typical market pathways for mango suppliers in Kenya.

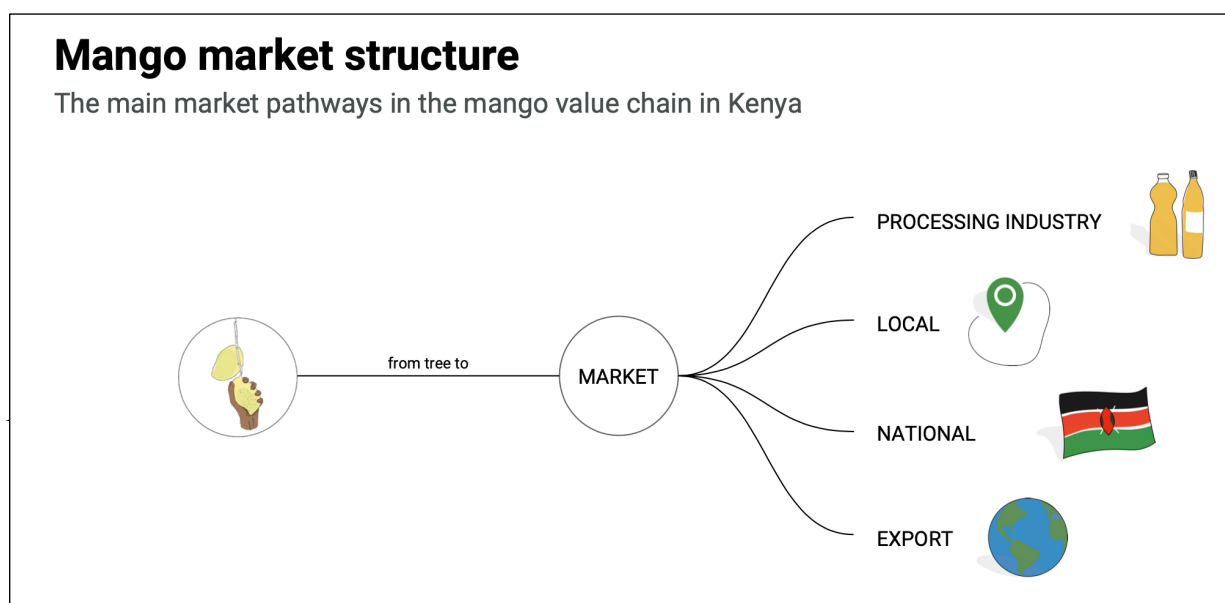


Figure 4. Mango market structure. Reprinted from “Increasing Access to Post Harvest Technologies to Women Farmers,” by Osborne et al.; SEI & Expedition Mondial, 2017.

Dried Mango Processors

In 2014, the International Trade Center reported only four dry mango processors operating in Kenya, including; Gikindu Quality Mangoes and Azuri Health Ltd., as well as two individual farmers, Margaret Kung’u and Ferdinand Njiru (ITC, 2014). In 2019, the market had nearly ten domestic competitors and many more international competitors (Fleming et al., 2020). Given this

new crowded retail space Kamau et al. (2019) posit that fruit processors in Kenya are overly dependent on the leading supermarket chains as their main distribution channel, which has led to many smaller processors struggling to operate.

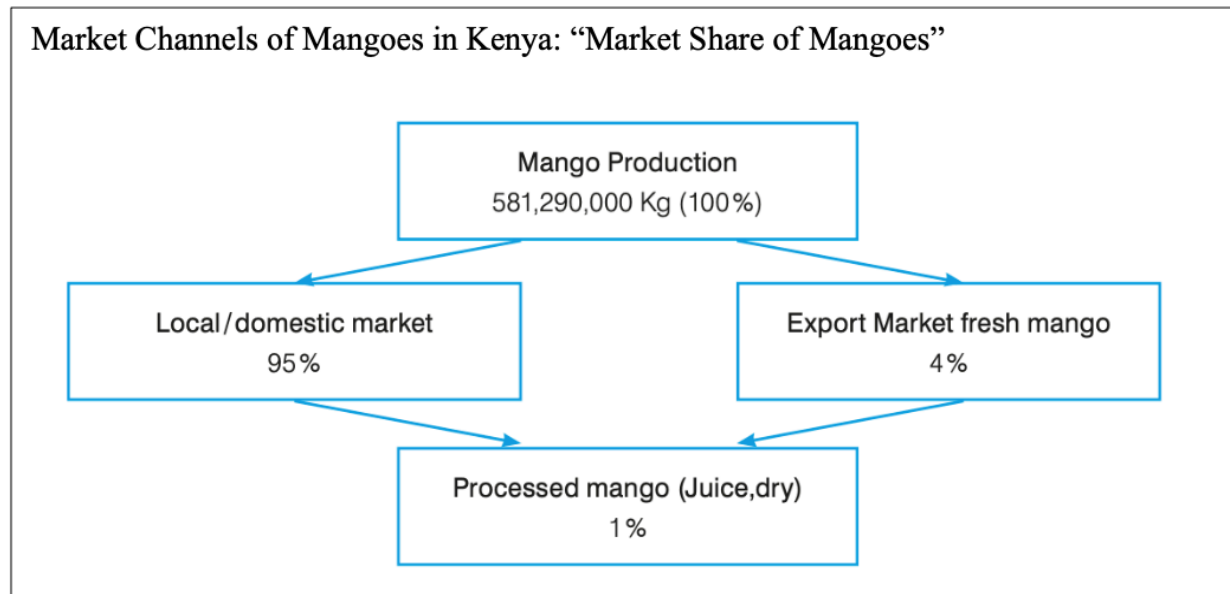


Figure 5. Market Channels of Mangoes in Kenya: “Market Share of Mangoes.” Reprinted from “Road Map for Developing & Strengthening The Processed Mango Sector” by the International Trade Center, 2014. Retrieved: Feb. 2020.

Actors and Functions in the Value Chain

The mango value chain in Kenya is composed of several actors including conventional supply chain actors and value chain service providers. Producers, traders, exporters, and processors make up the conventional actors. Value chain service providers include input suppliers, service providers, credit facilities, and fruit tree nursery quality control institutes (ITC, 2014).

In Kenya, producers are typically smallholder farmers working in organized groups, contracted or individual farmers with larger farms greater than half an acre (ITC, 2014). Domestic traders, marketing agents and brokers, buy fruit in bulk at the farm level and sell to open air markets

wholesalers, retailers, and exporters. Exporters for all horticultural products must register with the Horticulture Crop Directorate and often contract mango farmers. Major large and commercial processors dominate the processing of primarily fresh mangoes for juices, purees, and pulps (ITC, 2014). As supply chains continue to integrate through chain coordination and linkages, different actors in the chain become more reliant on one another developing key partner relationships (Mutonyi et al., 2018). Muthini (2015) contends, smallholder farmers are largely excluded from markets due to long value chains, lack of transparency, and the presence of too many chain actors. Therefore, they may be hindered by the inability to establish these key relationships and networks.

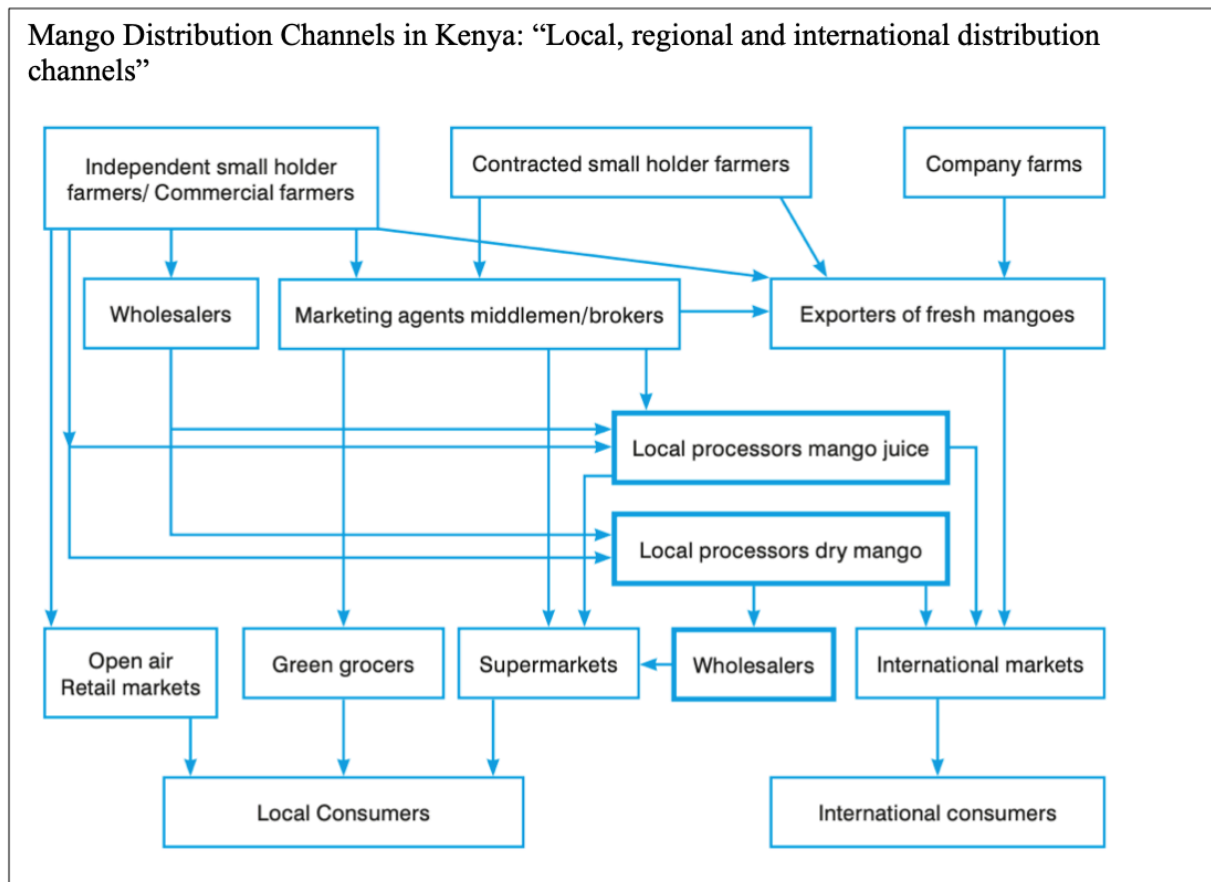


Figure 6. Local, regional and international distribution channels. Reprinted from “Road Map for Developing & Strengthening the Processed Mango Sector” by the International Trade Center, 2014. Retrieved: Feb. 2020

Degree of Market Transparency

Market transparency is hindered by the lack of accurate and free market information in Kenya, which has led to an increased sense of risk and uncertainty, resulting in high transaction costs for actors along the value chain. Subsequently, markets are inefficient and unresponsive to producer needs (Muthini et al., 2017). Smallholder farmers are especially affected by these conditions and find it difficult to penetrate formal markets with a lack of collective action cited as another major challenge (Muthini, 2015).

The Conditions of Entry and Exit

The conditions of entry in Kenya suggest there are no major institutional barriers preventing the entry of actors along the value chain. The government has only a regulatory role in the Kenyan mango market making it a fully liberalized market space (Muthini et al., 2017). Less stringent regulations and product standards make the logistics of exporting in Kenya and East Africa easier to some degree in comparison with European and American markets where barriers to entry for Kenyan enterprises exist (Owuor, 2015). However, for smallholder farmers significant barriers to entry in the mango industry continue to persist (Muthini, 2015).

Domestic Market

The consumption of mangoes domestically has increased due to the demand from a growing population, with a 4% increase in urbanization and an expanding middle class at a rate of 4% as well with greater spending power (Grant et al., 2015). In urban areas, mangoes are marketed at a higher value than in rural areas. During peak mango seasons, both markets are characterized by an oversupply while a scarcity exists during the low season. Supermarkets account for 2% of the domestic fresh mango market and attract high income consumers with top quality mangoes sourced

directly from farmers. Despite high rates of postharvest losses, estimates suggest that the supply of mangoes may outweigh the domestic demand for them in the future (Mujuka et al., 2020).

Export Market

Kenya supplies 1% of its mangoes to the European Union, which is less than 0.1% of the total imports of mangoes to the EU (Grant et al., 2015). Due to stringent food safety standards and the distance and difficulty of exporting to the EU, many other countries can supply mangoes to the region at a lower price than Kenya, particularly India and Pakistan (Grant et al., 2015). However, it is estimated that between 2013 and 2022, the local demand for mangoes will double and exports will increase fivefold (USAID-KAVES, 2014).

The leading importers of mangoes are North America and Europe, with demand for preferred mango varieties that excluded the major varieties Kenya exports (the *Apple* and *Ngowe* varieties). These varieties are also less suited for long-distance trade because of perishability issues (Grant et al., 2015). These export challenges prevent Kenya from entering the U.S. and European markets. However, mango exports in Kenya have quadrupled between 2007 and 2012, with an annual growth rate of 40%, with exports going to the Middle East as a high value product, and to Tanzania and Uganda as a lower value product (Grant et al. 2015). Markets in the Middle East may provide avenues to increase exports in the region. Middle East markets import the mango varieties produced in Kenya. The relative proximity of Kenya to these markets makes it logistically less costly to export there, while less strict food safety regulations compared to the EU and the U.S. also make Middle East markets more attractive (“Report on Mango,” 2011).

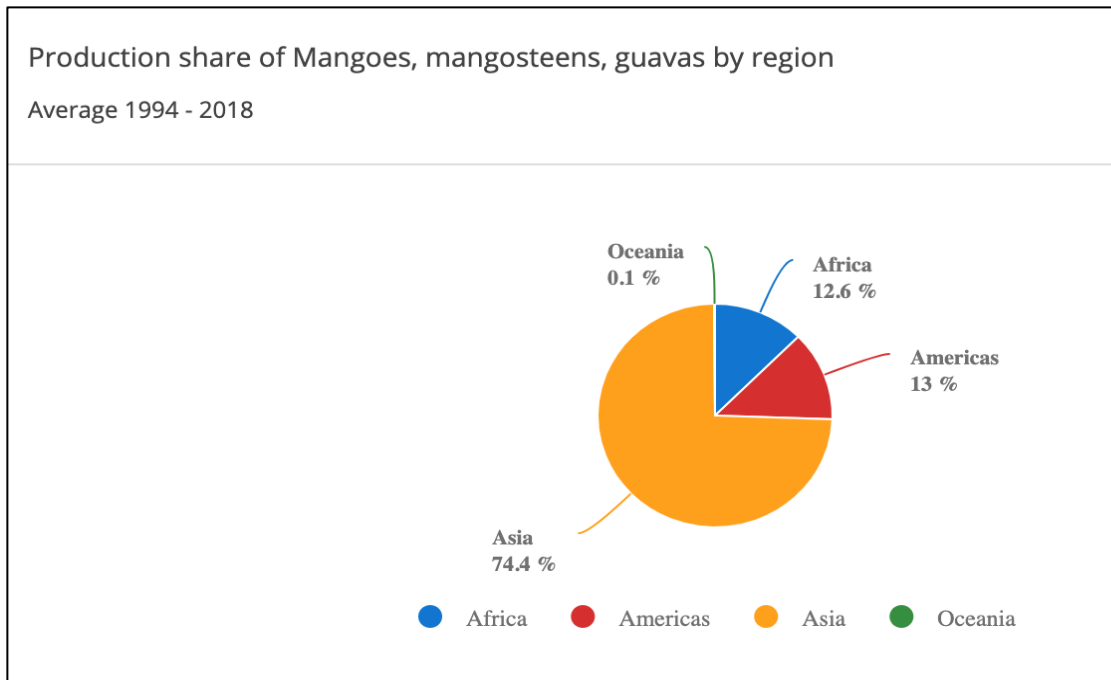


Figure 7. Production share of Mangoes, mangosteens, and guavas by region in the world, 1994-2018. Data from the Food and Agriculture Organization of the United Nations, 2020. FAOSTAT statistical database. [Rome]: FAO.

Market Conduct

This subsection discusses the conduct of actors along the mango value chain, including competition, the prices and costs of mangoes, the investment opportunities present, Research and Development (R&D), and innovation.

Competition

Competition in the processed mango value chain in Kenya focuses on certified markets (organic processing, Rainforest Alliance, Fairtrade Market) and fruit snacks (ITC, 2014). At present, the dried mango industry has few, although an increasing number of entrants, while other processing avenues have higher competition, including from large multinational corporations (*i.e.* Coca-Cola) that sources mangoes from Kenya for distribution of value added products (juices, purees, and

pulps) to the East Africa region (ITC, 2014). Additionally, most mango producers in Kenya are smallholder farmers and produce under rain-fed farming systems with little to no mechanization. As a result, no industrial-scale mango production is present in Kenya (“Agricultural Investment,” 2016). Therefore, new entrants to the market may focus on large-scale production or will coordinate with existing smallholder farmers (“Agricultural Investment,” 2016).

Prices and Cost

Prices for mangoes are not fixed at any point along the value chain. Prices are highly dependent on seasonal changes and agroecological regional differences. Generally, from farmer to wholesaler mangoes are 650 – 700 Ksh per kg (approximately \$6.50 USD), and dried mangoes to the retail market is 200 – 300 Ksh per 100 grams (approximately \$2.50 USD) (ITC, 2014).

Investment Opportunities

The Kenyan Government has established investment opportunities in the mango sector in Mombasa (the Tana River Delta) for the production and processing of fruit. The government has set aside seven large scale farming operations (totaling 350 acres) for mango production to target the domestic and international fresh and processed market (ITC, 2014). This “nucleus-outgrower scheme” to guarantee production to processors and exporters is seen as a major opportunity for commercial growing (“Agricultural Investment,” 2016).

Research & Development

There are many notable research institutions, government organizations and NGOs working in Kenya conducting research in food crops, horticultural and industrial crops, as well as in livestock,

water management and socio-economics (“Agricultural Investment,” 2016). For example, these institutions include the Kenya Agricultural Research Institute (KARI), CGIAR, Kenya Industrial Research and Development Institute (KIRDI), Jomo Kenyatta University of Agriculture and Technology (JKUAT), and D.K. Engineering Company Ltd. among others (“Agricultural Investment,” 2016; ITC, 2014). However, in terms of the dried fruit industry in Kenya there is still little known about key areas of research and development including product relevance, patents, product incensing and new varieties.

Innovation

Future research for the processed mango sector should focus on improved packaging to support exports in terms of the preservation and quality of the product, as well as improved branding (ITC, 2014). Market research is also an area where all actors of the value chain and the government must improve to encourage well-designed strategic planning and to enhance the enabling environment for marketing products.

Market Performance

This subsection discusses the market performance of the mango value chain in terms of economic profit and Return on Invested Capital (ROIC), value addition and market growth and demand.

Economic Profit & ROIC

In 2016, Kenya’s mango processing market was characterized by insufficient local processing of mango products, due to the limited cultivation of mango varieties well-suited for processing

(“Agriculture Investment,” 2016). As a result, the sector is largely underperforming and is faced with major inefficiencies.

According to “Agricultural Investment” (2016) compared to the average Kenyan farmer, mango farmers collaborating with the outgrower scheme are estimated to generate twice as much revenue. This is based on a calculation of the ROIC of the outgrower scheme at 51.8%, with a net profit margin over five years at 20.3% (“Agricultural Investment,” 2016). Mutonyi (2018) suggests, the tendency for farmers to organize is mainly because of the need to increasing bargaining power to achieve higher profit margins.

Value Addition

In 2014, the International Trade Center found that value addition was a critical area of expansion for the mango sector. They confirmed that processors operated at only 35% - 40% capacity because of irregular supplies of traceable quality and certified mangoes (ITC, 2014). Additionally, insufficient product differentiation by SME processors has also been identified as a barrier to value addition and the overall profit margin of the mango value chain (ITC, 2014). New interventions in value addition like the NETFUND approach proposes opportunities for dried processors to convert dried mangoes into powder form to create additional value and preserve mangoes for a longer time (Owuor, 2015). This protein rich powder can also be a juice or smoothie alternative during periods of scarcity (Owuor, 2015).

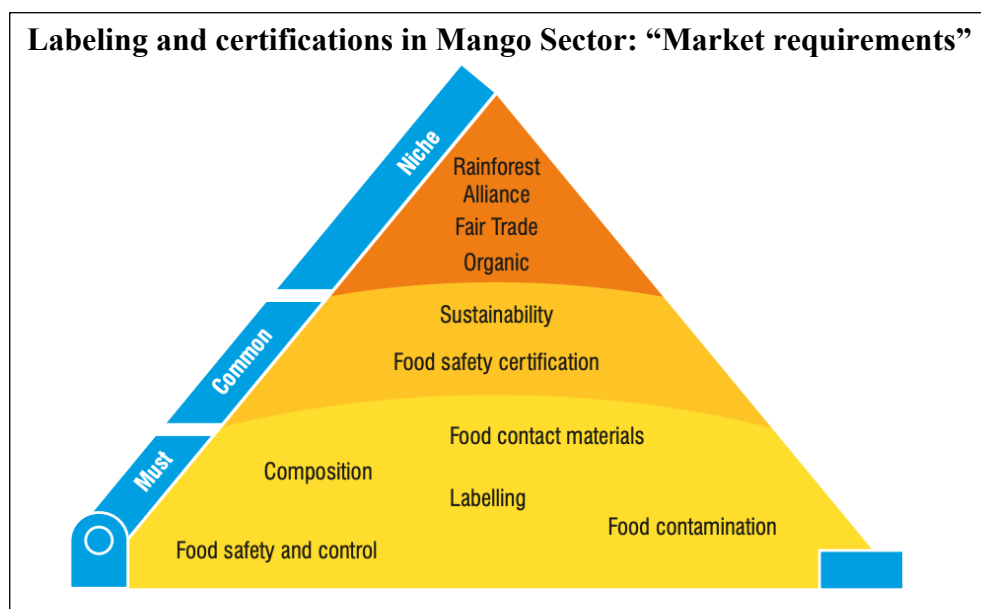


Figure 8. Labeling and certifications model for market requirements. Reprinted from “Road Map for Developing & Strengthening The Processed Mango Sector” by the International Trade Center, 2014. Retrieved: Feb. 2020.

Growth & Demand

Mango markets are segmented into fresh fruit, processed fruit and direct consumption fruit (juices, dried mango, pickled mangoes), as well as fruits used in food preparations (chutneys, pastes, purees, flour, and mango slices in brine) (Grant et al., 2015). In Kenya, 98% of the mangoes produced are consumed domestically and only 2% are exported (Msabeni et al., 2010). Economically the mango sector is growing in relevance and importance, with the potential of the industry characterized as having “not been fully exploited” (Kehlenbeck et al., 2012). The annual production of mango continues to rise and has resulted in a significant increase of the total acreage and geographical spread of mango production in Kenya (USAID-KAVES, 2014).

In conclusion, the Kenyan government has focused more resources on increasing the support and investment opportunities for SMEs to help promote the creation of shared value initiatives and the development of strategic agri-business plans. SMEs and individual farmers have been the

innovators of dried mango processing in Kenya and have creatively carved out market niches for themselves. SMEs have also proven to increase profit margins for smallholder farmers in comparison to exporters, making this avenue a critically important one for the economic development and livelihood security of the country's large farming population. Examining the potential of mobile technologies, e-commerce, agronomic knowledge intensification practices (particularly addressing harvest losses), increasing value chain efficiency in terms of the operating capacity of existing dried mango processors, and strengthening the capacity for actors along the value chain should also be prioritized in order to support SMEs and farmers.

CHAPTER V

CASE STUDY

Azuri Health Ltd. Introduction

Azuri Health Ltd. is a socially and environmentally conscious agro-processing company located in Thika, Kenya, approximately 30 miles from the capital Nairobi. The CEO, Tei Mukunya, established the company in 2010 with support from family and friends. Today, Azuri Health produces two main product lines, dried fruit snacks and vegetable flours. The company has a health conscious brand positioning and promotes their products as minimally processed, highly nutritious and as locally sourced healthy food alternatives. Azuri Health's dried fruit snack product line primarily features mango, as well as pineapple, coconut, and passion fruit (Fleming et al., 2020).

The company is a mission-driven hybrid social enterprise that aims to be an instrument of economic development for smallholder farmers, with an emphasis on supporting woman farmers and reducing food waste. Azuri Health has sold its products internationally, but currently focuses domestically in Kenya and sustains a position in the urban food retail premium niche market. However, in 2020 the company reported a significant increase in the saturation of the dried fruit retail market from large scale international competitors and multinational corporations. This has encouraged the company to rethink its marketing strategy (Fleming et al., 2020).

Azuri Health Ltd.: Value Chain

Azuri Health Ltd. sources its produce from smallholder farmers in Kenya and Uganda. All mangoes are obtained from Kenyan farmers that practice mixed cropping or multistory agroforestry systems. The company works with 27 farmer groups and 500 individual farmers. It has established a close relationship with farmers and links them to technical training extension services throughout the year to improve crop quality.

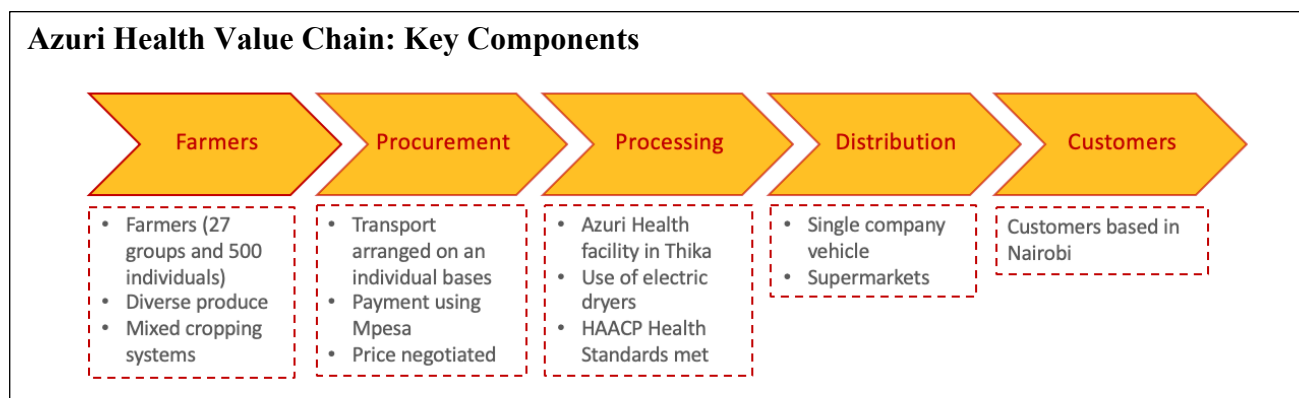


Figure 9. Azuri Health Value Chain: Key Components. Reprinted from “Azuri Health, Ltd.: Healthy Just Got Tastier.” by Fleming et al., Kenya SMART Project, 2020.

One of the central pillars of the company mission is to prevent post-harvest losses. The company hopes to increase its production capacity to match farmer supply to reduce waste, as well as to capture the supply of other crops produced by farmers to promote climate resilience and food security through crop diversification (Fleming et al., 2020).

At each harvest season, Azuri Health arranges individual transportation channels for each farmer or farmer group. Farmers are then responsible to bring produce to major roads. This is often done by carrying the produce or using bicycles and motorcycle taxis. These transportation methods can incur higher transaction costs and impact the quality and quantity of products. The company is

dedicated to supporting farmers economically and pays them competitively (comparatively higher than industry standards). Farmer and transport agent payments are conducted using the mobile application, M-Pesa, and prices are negotiated on the spot.

At the Azuri Health processing plant, fruits are bulked, cataloged and weighed. Processing includes washing, peeling and cutting, drying (sun-drying and LPG electric drying), bulking into storage bins, and packaging products in 100 gram bags based on shipment load (Fleming et al., 2020).

Azuri Health Ltd. Dried Fruit Processing					
Fruit Arrival	Cleaning	Peel and Cut	Drying	Bulking and storage	Packaging
Weight Produce	Cleaning process using water and chlorine HACCP standards	Peel and cut into even slices	Electric dryer (15 hours)	Stored in safe plastic bulk bins until shipments arranged	Package in 100g plastic branded bags
Quality check			Solar drying in the event of inconsistent electricity		
Ripening					

Figure 10. Azuri Health Ltd. Dried Fruit Processing. Reprinted from “Azuri Health, Ltd.: Healthy Just Got Tastier.” by Fleming et al., Kenya SMART Project, 2020.

Finished products are distributed via a company vehicle and brought to various retail locations.

Only a small percentage of sales are direct to consumers. Depicted below are the components of Azuri Health’s distribution channels.

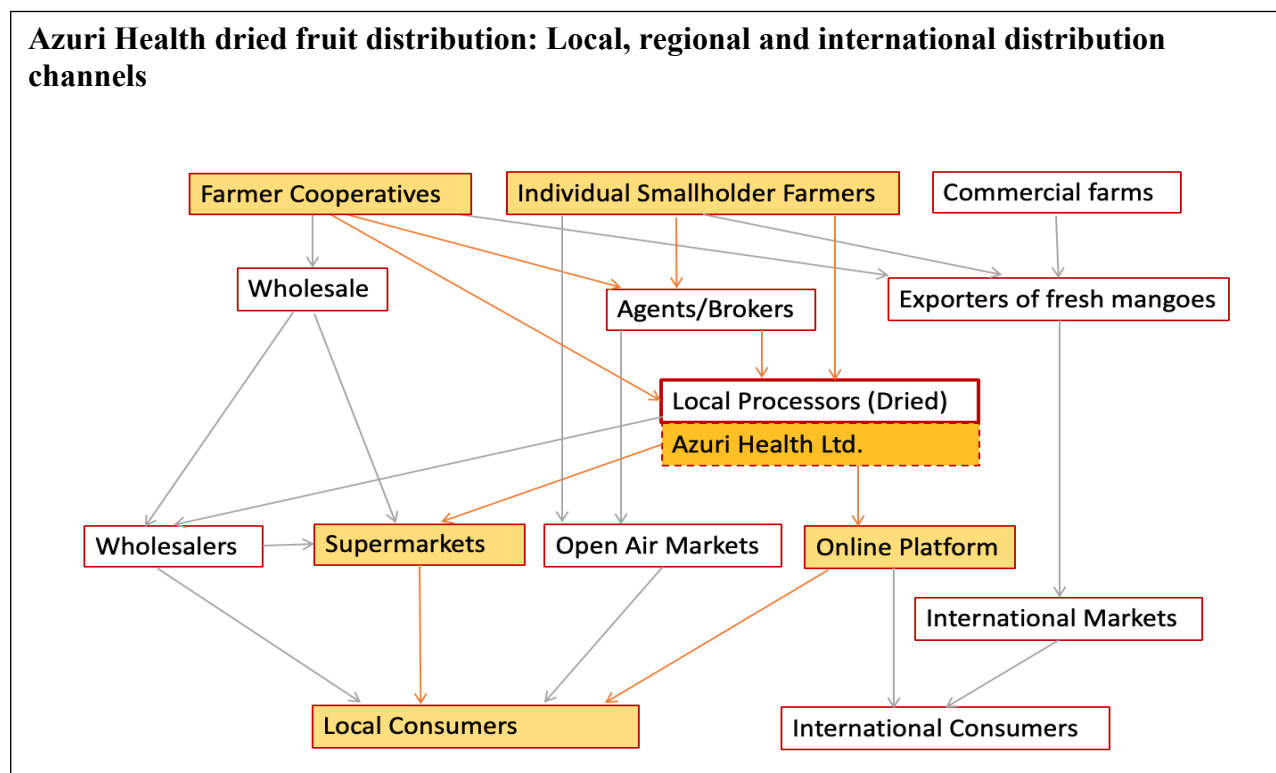


Figure 11. Azuri Health dried fruit distribution: Local, regional and international distribution channels. Reprinted from “Azuri Health, Ltd.: Healthy Just Got Tastier.” by Fleming et al., Kenya SMART Project, 2020.

Note. The model reflects the common distribution channels used in the dried mango supply chain. Yellow arrows represent the distribution pathways used by Azuri Health Ltd. as of 2020. The model is adapted from “Road Map for Developing & Strengthening the Processed Mango Sector,” 2014.

Methods

The Cornell Kenya SMART Team visited Azuri Health in January 2019. The team used mixed methodology to collect both quantitative and qualitative data on behalf of the company as well as for SMART case study research. During the two-week research period, based mainly in Nairobi and hosted by Azuri Health, three research questionnaires/surveys were developed for the company. The three surveys were used to collect data for the purpose of conducting marketing research in order to understand consumer purchasing habits and trends for Azuri's dried fruit product line. Market research consisted of 1) one online survey which was distributed to health-conscious millennial consumers, 2) a retail manager survey that was conducted at Azuri Health's retail locations, and 3) two focus group discussions (Appendix A).

In addition to market research designed on behalf of Azuri Health, the Kenya SMART Team used an adapted FAO Survey Template (Appendix B) to gain a better understanding of Azuri Health's history, business model, operations, value chain and more. The questions in the Adapted Business Template survey were designed to provide a holistic understanding of the company in order for the Kenya SMART Team to develop an educational business case study that can be used to analyze the company's competitive marketing strategy in the context of the domestic Kenyan dried fruit market with a focus on mangoes. All of Azuri Health's employees and the CEO were interviewed with department-specific questions for the survey, with the exception of two processing and packaging workers.

Qualitative data collected by the Cornell Kenya SMART Team was used to examine and gain a better understanding of the opportunities and challenges faced by women-led SMEs in the mango

value chain. In addition to data collected by the team, in an in-person interview, the CEO of Azuri Health, Tei Mukunya was asked to expand upon her experience as a woman entrepreneur and business-owner in Kenya. Chapter VI analyzes the challenges and hurdles she has identified.

These methods have provided quantitative and qualitative data about the status of the company and one woman's experience as an entrepreneur and business-owner. Although this research provides valuable insight on the opportunities and challenges faced by a women-led business, it does not represent the circumstances and climates faced by all women-led businesses in Kenya. Larger scale research is needed to gain a better understanding of the challenge's female entrepreneurs face in order to better determine how to address gender gaps in business environments.

CHAPTER VI

FINDINGS

Challenges for a Women-led Enterprise (Azuri Health Ltd.)

The literature review shed light on two major areas in which woman-led business are faced with challenges in the mango value chain; access to technology to reduce food/product waste and access to inclusive financial services. Based on data collected about the company, as well as Tei Mukunya's reflections of her personal experience as a women entrepreneur, these areas (technology and finance) are represented as major challenges, as well as new challenges not previously discussed in the literature review.

When asked about general challenges' women entrepreneurs face, Mukunya responded;

"I was going to say that I am not sure if female entrepreneurs face different challenges from male but coming to think of it, females have to factor in family issues that take up their physical time more than males, making deals outside working hours become hard because of safety reasons, family responsibility and culture. As a female you meet many chauvinists who will not give you a chance or want to just have a [business] relationship" (Tei Mukunya, Personal Communication, Thika, January 2020).

Mukunya's comment reflects key topics discussed in the literature review. In terms of business and entrepreneurship, there are supporting assertions by Aterido et al. (2013), that despite recent studies suggesting that gender gaps are closing in many countries, issues like access to finance and capital have more to do with women's participation in business activities than just the availability of resources and services. As Mukunya notes, females must factor in time consuming family responsibilities, cultural norms, and safety percussions when making business deals outside of working hours. This strongly reflects the analysis from Hoffman & Roscoe (2016), that women

entrepreneurs must overcome high barriers to involvement in business activities including limited access to information and networks, violence, and household and community care responsibilities.

As this relates to the chapter ‘The Mango Value Chain in Kenya’ analysis (Part I and Part II), the issue Mukunya brings up about the difficulties of “making deals outside working hours,” is particularly relevant given the structure of the mango value chain. Mutonyi et al. (2018) contend the integration of the mango supply chain means chain actors are more reliant on each other, making interpersonal trust an important relational dimension of business in the sector. Mutonyi et al. (2018) cite studies that suggest developing trust between business partners is a critical component of overall business performance and contends that success in the mango business *requires* that suppliers and traders build close relationships. Further, Mutonyi et al. (2018) use a conceptual framework to model the relational factors necessary for successful business performance in the mango industry and states that the degree of fairness, closeness, communication quality and trust are the leading factors influencing success in the sector. Given this analysis, Mukunya’s experiences and observations seem to expose a critical area where women are excluded from participation in activities that lead to successful business performance. This represents a non-financial measure attributing to the success of a business that is less calculable than commonly stated gender constraints like access to finance.

Understanding Management Challenges

When Mukunya was asked to discuss her own experience and specific challenges she and her company face, she highlighted cash flow management, capacity development, juggling between tasks/wearing many hats, and effective management of legal issues. These major challenges that

Mukunya describes fit under the umbrella of management. Given the data collected for the company’s case study, challenges of management can also be observed in categories pertaining to finance, technology, the value chain, marketing and more. However, Mukunya’s responses also shed light on new issues, specifically the issue of effective legal management.

A systematic procedure to assess these challenges may be essential for a company like Azuri Health. Based on Tei Mukunya’s responses, new uncertainties for the company and how to address them arises that is separate from the business case study analysis of Azuri Health— which largely omits the unique challenges that a women-led business may encounter. Therefore, a gender-based analysis of the company’s performance and supply chain creates a more robust understanding of the challenges and opportunities the company faces.

This analysis therefore emphasizes management challenges with a gender focus. The critical areas to focus on include: access to financing and technology, value chain management, cash flow management, capacity development, safety, household and community responsibilities and effective management of legal issues.

Table 1. Strategic Uncertainties in Agribusiness Analysis

Categories of Strategic Uncertainty		Examples from Azuri Health Ltd.	
	<i>Description</i>	<i>Potentials</i>	<i>Exposures</i>
Business/Operational	Operations and Business Practices, Strategic Positioning and Flexibility	Capacity Development, Superior Workforce, Creating Synergies and Networks	Business Interruptions, HH and Community Responsibilities, Loss of Key Employees, Limited Access to Talented Hiring Pool

Financial	Financing and Financial Structure, Financial Markets	Strong Financial Position, Access to Equity Funds/Investors, Attractive Financing Terms (Amounts and Terms), Financial Reserves	Minimal Access to Lenders (Credit and Insurance), Loss of Lender, Reliance on Donors, Grants and Short-term Investors (High Turnover)
Market Conditions	Market prices and Terms of Trade, Competition and Customer Relationships, Reputation and Image	Strong Brand, Large Retail Space, Complementary Products and Bundling Potential, Customer Loyalty	Loss of Market Share, Hyper-Competition, Consolidation of Industry
Technology/Value Chain	Technological Change/ Efficiency in the Value Chain	Speed of Innovation and equipment, Resilience to Environmental Shocks	Limited Access to New Technologies (Financing), Competitors Have Dominance of VC Segments, Slow and Costly to Commercialize New Products, High Transaction Costs
Business Relationships	Business Partners and Partnerships, Distribution Systems and Channels	Strong Market Position with Distributors, Strong Relationship with Suppliers, Access to Future Relationships	Safety Risks, Limited Access and Resources Available for Network Building, Dependence on Distributors and Suppliers
Policy & Regulation	Political Climate, Regulatory and Legislative Climate	Open Trade, Patent Protection, Speed of Approval	Limited Access to Legal Information, Changes in Intellectual Property Law, Changes in Tax Policies, Local Limits on Technology Adoption

Table 1. Strategic Uncertainties in Agribusiness Analysis. Adapted from “Future Agribusiness Challenges: Strategic Uncertainty, Innovation and Structural Change” by Boehlje et al. at the International Food and Agribusiness Management Association, 2011; Detre et al., 2006.

The chart above looks at the key uncertainties of agribusiness firms. This framework can help assess uncertainty from both a potential and an exposure perspective. Understanding how gender dynamics impact key areas of uncertainty can help develop appropriate uncertainty and business risk management strategies for women-led enterprises (Boehlje et al., 2011; Detre et al., 2006).

Adapting this framework to include the perspective of gender will add to and expand the analysis of Azuri Health Ltd as a company.

In the Internal Food and Agribusiness Management Association (IFAMA) report, Boehlje et al. (2011), it is noted that Hillson (2003) defines uncertainty as “any event or set of circumstances that, should it occur, would have an effect on one or more objectives” (p. 55). Further, Boehlje et al. (2011) suggest, “firms must utilize all available information to form best-guess estimates about the impacts of these risks through quantitative and qualitative methods to determine the realm of possible outcomes and choose strategies based on these outcomes” (p. 55). Managing uncertainties helps companies understand business risks, while focusing only on uncertainty avoidance can cause a company to overlook key opportunities to create value (Nottingham, 1996; Talavera, 2004).

As in the case of Azuri Health, women-led enterprises are likely to encounter greater dimensions of uncertainty. Some of the dimensions of uncertainty demonstrated in *Table 1* can more recognizably be defined as gender-based constraints (GBCs). The GBCs demonstrated in *Table 1* include, HH and Community Responsibilities, Minimal Access to Lenders, Limited Access to New Technologies (Financing), Minimal Access to Lenders (Credit and Insurance), Access to Future Relationships, Safety Risks, and High Transaction Costs (USAID, 2009). However, applying a gender-sensitive lens to all of the “Potentials” and “Exposures” descriptions reveal the complex impact gender dimensions have on company performance. For example, due to ‘Limited Access to Lenders’, Azuri Health has become more reliant on donors and grant financing which means the company has allocated significant time and energy to seeking funding and maintaining donor

relationships impacting its business functions. Another example is if ‘Access to Future Relationships’ is limited for women-led enterprises then that might effect a company’s ability to ‘Create Synergies and Networks,’ and could ultimately affect the ‘Speed of Approval’ in terms of regulatory requirements and legal management (an issue expressed by Azuri Health). The exclusion of the women-entrepreneurs' face from business networks can also be seen structurally and organizationally throughout the value chain in the ‘Consolidation of Industry.’ These examples exemplify the interconnectedness and casual relationships of these dimensions and the potential cumulative effect GBCs may present. Hennink et al. (2012) describe the inter-linkages between empowerment domains (health, economic, political, and natural resource empowerment) as operating directly or indirectly, suggesting recognition of interdependence between various components of empowerment is a key to strengthening sustainable development initiatives.

Deepening an understanding of GBCs and dimensions of uncertainty along a value chain can help firms address the root causes of underlying inefficiencies in their value chain (FAO, 2016). It can also help illuminate the causal relationships and interdependences of “Potentials” and “Exposures” within the categories of Strategic Uncertainties. Analyzing and measuring company performance should thus take into account aspects unique to woman-led enterprises using a gender-sensitive value chain analysis (FAO, 2011).

The following chapter will apply and adapt the FAO (2016) Gender Sensitive Value Chain Framework to analyze the performance of Azuri Health with a new gender-sensitive perspective in order to extrapolate key lessons learned from the case study.

CHAPTER VII

LESSONS

Gender-Sensitive Value Chains

The following frameworks can be used to further investigate and deepen an understanding of the effects of GBCs on women-led enterprises. The following does not represent research that Azuri Health has done, but rather uses the company as a reference to investigate how gender-sensitive value chain analysis can reveal future potential pathways and the root causes of company challenges.

To analyze the effect of GBCs on Azuri Health’s value chain, it is necessary to look at three key subjects: 1) participation in the value chain, 2) access to control over productive resources, and 3) access to control over benefits. According to FAO (2016), the major GBCs inhibiting the value chain tend to concern a lack of access to productive resources, however the inability to utilize economic opportunities and create value is often a result of the limitations of an individual's “power and agency.” FAO (2016) uses Power and Agency Indicators to understand how GBCs inhibit the value chain; control over assets, agency/decision making, autonomy/mobility, self-confidence/self-efficacy, gender norms, and gender roles/responsibilities.

Table 2 examines the potential GBCs in the Azuri Health value chain, to reveal whether value chain benefits are being captured or lost, and to identify any limitations on either the supply or demand side of the chain. The ‘Power and Agency Areas’ column in the table has been adapted

to use both findings from the literature review and FAO (2016) Power and Agency Indicators to analyze the effects of GBCs on Azuri Health's operations.

Table 2. Azuri Health Ltd. Gender-Sensitive Value Chain Analysis: Power and Agency Indicators

Value Chain Segment	Company Description	Power and Agency Areas (GBCs)	Analysis
Farmers/ Production	Azuri's fruit are supplied from male and female producers, as well as cooperative groups.	Women farmers are more likely to have limited control over assets (i.e. land) and limited access to potential postharvest loss technology, farm inputs, and training information. Farm tasks may be aligned with gender norms/ gender roles.	<p>Azuri has harnessed the support of NGOs to provide technical training for their farmers. Azuri hopes farmers will have access to governmental technical extension services to not solely be reliant on NGOs.</p> <p>Azuri has non-contractual agreements with farmers and reportedly pays higher than market prices for produce to support their farmers and their mission-riven objectives.</p> <p>Due to the support of NGOs the quality of produce is reported to up to company standards.</p>
Procurement	Azuri relies on a vast network of farmers and transport agents to deliver produce to their factory.	Gender norms and gender institutional barriers can impact logistical networks and price negotiations. Self-confidence/agency may especially impact procurement transactions.	These networks have the potential to accrue high transaction costs and may be subject to infrastructural challenges.
Processing	<p>Azuri funded their new processing plant through partner grants.</p> <p>Azuri has a small staff and they focus on empowering and employing women.</p>	<p>Women typically have limited access to financial services and loans.</p> <p>Women staffers may face greater responsibilities outside of work.</p>	<p>Due to many business environment factors, Azuri has had significant difficulties acquiring financial services (i.e. access to credit). Personal network loans were used to start up operations.</p> <p>Strategic partnerships and grants have been a way of establishing funding for the company, where credit was not available.</p>
Distribution	Select number of supermarkets.	Supermarkets in Kenya are a male dominated retail space.	Azuri relies predominantly on supermarket distribution channels, which has been identified as a challenge for competition.
Customers	Little understanding of gender breakdown in purchasing habits.	It is critical to understand consumer's preferences and willingness to pay for specific products and gender-based HH	Azuri has begun to conduct market research to understand their consumer base and to investigate new marketing avenues.

		decision-making/agency effects on purchasing.	
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Table 2. Azuri Health Ltd. Gender-Sensitive Value Chain Analysis: Power and Agency Indicators. Adapted from “Developing gender-sensitive value chains – A guiding framework,” by the Food and Agriculture Organization of the United Nations, 2016. [Rome]: FAO.

Each value chain segment has areas in which GBCs and ‘Power and Agency Indicators’ may affect Azuri Health’s ability to capture value. In the production segment, Azuri may be losing money because of their mission-driven goal of supporting farmers by paying them above market price for produce. However, Azuri Health’s ability to process additional supply may benefit the farmers more. They also rely heavily on NGOs and extension services to provide technical training for farmers that may or may not align with the needs of the company. In procurement, the power to negotiate price and disaggregated logistical networks may be resulting in higher transaction costs for Azuri compared to competitors. In processing, Azuri has been able to adjust to the environment of inaccessible institutional loans and credit by partnering with organizations and finding alternative sources of financing (i.e. personal networks for loans and grants). However, this process has added more work for the company and has taken substantial time to find partners that the company now relies on. Finally, in terms of customers, it is possible a lack of market information means Azuri is missing out on potential price premiums or may reveal their mission-driven product-center approach isn’t aligning with consumer demand.

When determining a competitive strategy for a women-owned business, it may be necessary to look at the value chain in terms of GBCs. Developing a competitive business strategy for a women-owned business like Azuri Health may therefore involve reducing or mitigating areas where benefits are not captured. In the case of Azuri as a processor, these challenge areas are seen

vertically throughout the value chain. Ihalainen et al. (2020) acknowledge that in recent years development policies have increasingly emphasized improving the gender inclusiveness of value chains, engaging the private-sector, and encouraging benefit sharing by often targeting sectors that already have many women participants. However, Ihalainen et al. (2020) provide a counterargument to this recent trend and suggests policies should go beyond simply enabling participation in value chains and should instead focus on trying to identify and analyze how to change the gender composition of whole value chains. Compositionally, Azuri Health has control over only one section of the value chain, processing, and it may be necessary for development policies, as well as Azuri Health's competitive business strategy to consider an approach that works through vertical integration either up or downstream. Policies that work to develop gender inclusive intermediaries, trade agents/brokers, or technologies with transparency and access to market information may also serve as a solution to this issue.

Value Chain Governance Structures

Azuri Health's value chain governance structure could be characterized as 'relational', meaning both the supplier (farmers) and the buyer (Azuri Health) have a mutual dependence, undergoing business functions that are complex and cannot be codified (Hernández & Pedersen, 2017). Additionally, in a relational value chain governance strategy, interactions are dense, knowledge is tacit, and they exchange complex information. In the case of Azuri Health, this means the company has individualized relationships with suppliers that require intensive attention; in other words, a high complexity of transactions and low ability to codify transactions. Therefore, there is a medium degree of explicit coordination and a low to medium degree of power asymmetry. Relational governance is often more promising to suppliers, but also demands relatively high

capacity from suppliers for complex business functions. However, Azuri Health employees have also stated that its farmers rely heavily on their relationship and hope the production capacity of Azuri's processing plant could increase in order to capture the high supply (Fleming et al., 2020). This demonstrates a relationship that trends towards 'captive governance.' Additionally, negotiations with suppliers are done through spot purchasing and regular trading, which is more challenging than contractual relationships. When examining Azuri's relationship with its product buyers and retail supermarkets, it is evident that Azuri's low market share and dependency on one single revenue channel reduces its bargaining power.

Given Azuri Health's current structure, as well as the uncertainties compounding from GBCs and Power and Agency inhibiting factors, these types of relationships with both suppliers and retail buyers may not be sustainable in the future. This does not mean that this value chain governance structure for Azuri Health is not promising. It does, however, mean that applying a gender-based analysis illuminates that uncertain and challenging conditions that may be amplified. Therefore, it might be beneficial for Azuri Health and other women-led enterprises to codify and minimize high complexity transactions and find a way to command control over its productive resources. This could include expanding its efforts with partners or moving to joint ventures and internal provisions over multiple segments of the value chain (FAO, 2016; ITC, 2017).

Azuri Health Ltd. Gender-Sensitive Value Chain Analysis: Participants

Choosing a segment of the supply chain to command is important for any SME, however achieving a competitive position requires routine reflection on company strengths and weakness (ITC, 2017). According to ITC (2017), the more involvement in a value chain for an SME, the greater the

demands on managerial and operational resources and capacity. This includes “building and retaining relationships with partners, meeting product requirements, undertaking purchasing and supply functions, managing logistics and monitoring business performance” (ITC, 2017, p. 6).

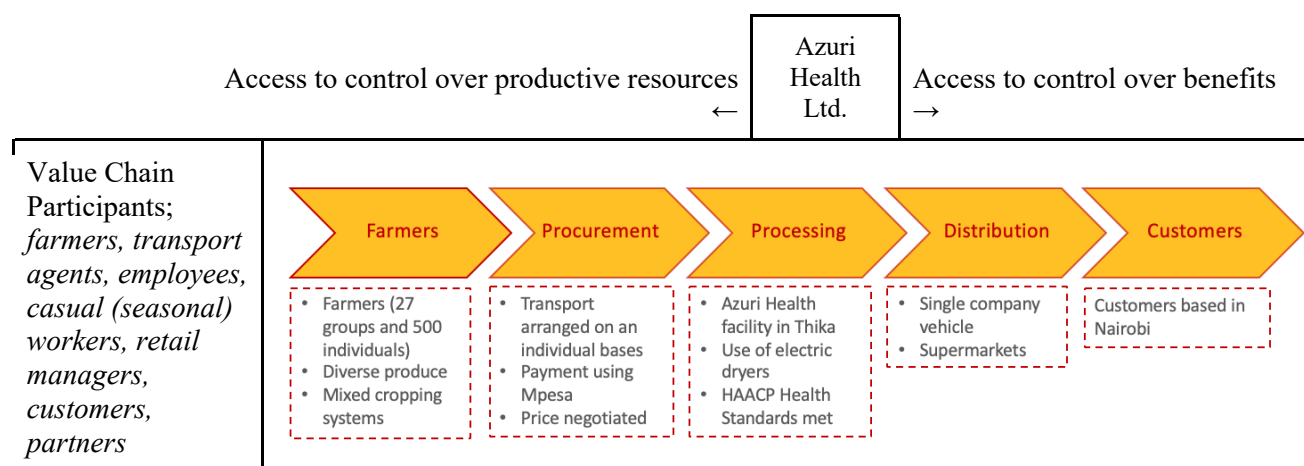


Figure 12. Gender-sensitive value chain analysis of the Azuri Health Ltd. participants. Adapted from “Azuri Health, Ltd.: Healthy Just Got Tastier.” by Fleming et al., Kenya SMART Project, 2020 and from “Developing gender-sensitive value chains – A guiding framework,” by the Food and Agriculture Organization of the United Nations (FAO) Rome, 2016.

The figure below, *Key competencies for operational excellence*, demonstrates the three pillars of competitiveness for SMEs; connect, change and compete. Based on the Azuri Health 2020 Kenya SMART Team case study, the company predominantly struggles with the ‘compete’ pillar but has proven to excel within the ‘change’ and ‘connect pillars’. However, the case study does not look at ‘quality management systems.’

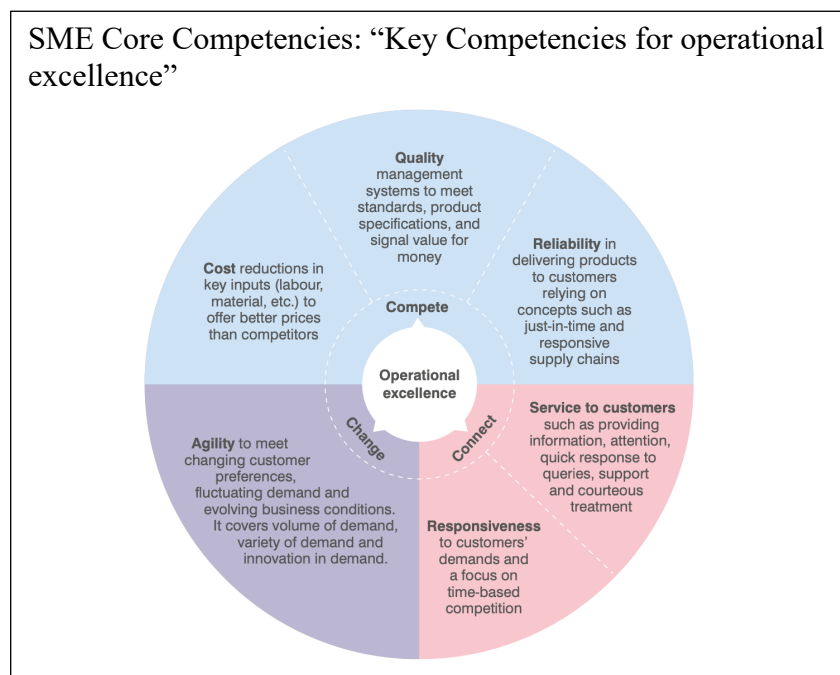


Figure 13. SME Core Competencies: “Key Competencies for operational excellence.” Reprinted from “Close-up: SME guide to value chains,” by SME Competitive Outlook ITC, 2017.

When applying additional gender-sensitive value chain analysis to Azuri Health’s company performance the lack of attention paid to managerial challenges is illuminated. As previously stated, one of the most critical aspects of SME involvement in the value chain is the demand of managerial and operational resources and capacity, including “building relationships with partners,” and other high complexity transactions. This is a major GBC identified by the Azuri Health CEO and discussed in the literature review.

CHAPTER VIII

CONCLUSION

The aim of this paper and the use of a case study is to contextualize the literature on the challenge's women-led enterprises face within the mango industry and to draw more attention to how important it is to bring gender awareness to the analysis of SMEs functioning in value chains. Digging deeper into the case study analysis of Azuri Health with a gender-sensitive value chain analysis revealed new areas in which Azuri Health can capture more benefits along the value chain. The paper used a literature review and macro analysis of the mango value chain in Kenya to provide a more holistic context in which to analysis the challenges women-led enterprises face in the mango industry. Findings were derived from data collected during the 2020 Kenya SMART Team visit to Azuri Health's facility in Thika, Kenya. Findings from company interviews with the CEO, Tei Mukunya, found responses reflecting key topics discussed in the literature review. Thematic issues suggested general challenges faced by women entrepreneurs go beyond access to finance and technology. These include barriers to participation in business activities, limited access to information and networks, heightened risk of gender-based violence, and household and community care responsibilities as discussed by Hoffman and Roscoe (2016). Specific challenges faced by Azuri Health largely pertained to management and were examined with a gender focused analysis of the key uncertainties of agribusiness firms. Further research is needed about uncertainty and business risk management and should include GBC awareness in order to determine detailed strategies for women-led enterprises.

Key lessons extrapolated from the findings were divided into a gender-sensitive value chain analysis and value chain governance analysis. These sections reveal the need for a greater discussion and attention to the composition of value chains as they pertain to gender-based power and agency and chain governance. The key lessons suggest that development policies and individual company strategies should not only examine elements of women's participation and engagement at each segment of the value chain but should scrutinize the transactions and activities that take place at the junction of value chain segments. This is a realm in which Azuri Health was not fully capturing benefits. Value chain actors like intermediaries, trade agents, and technologies that increase transparency and access to market information may thus be critical areas for future gender focused analysis and should be targeted for gender inclusivity. Additionally, considering different business strategies for women-led enterprises that involve commanding segments of the value chain in terms of vertical integration or strengthened/codified efficient chain relations to reduce circumstances primed for GBCs are also areas for further research.

Finally, Ros-Tonen et al. (2019) suggest that literature on value chain inclusivity propose three main debates that frame the discourse with either a growth-based market economy approach or a societal approach. This paper argues that independent of the goals and objectives of value chain actors, a multidimensional and multidisciplinary gender-based analysis throughout the value chain for specific industries within a country-context is necessary to understand areas of value creation, capture and loss. This is largely in accordance with Ros-Tonen et al. (2019) in that a recognition of the heterogeneity of value chains and actor networks is critical in determining the approaches and processes necessary to achieve gender inclusivity.

APPENDIX

Appendix A

Azuri Health Market Research Data Collection Surveys 2019 – 2020

MILLENNIAL CONSUMER SURVEY

1. What do you consider important when purchasing food products? *Please choose 5 -- answers to rank from 1 to 5 (1 the least, 5 the most)*

1. Taste
2. Personal wellbeing and health
3. No chemicals or organic
4. Ingredients
5. Locally sourced
6. Traceability
7. Socially or environmentally responsible
8. Quality

2. Where are you most likely to buy healthy snacks?

1. At a petrol station
2. The supermarket/grocery store
3. Other (space for response)

3. When do you consume healthy packaged snacks?

1. On-the-go
2. At home
3. To carry to work or school
4. After the gym
5. To keep in the car or for travel

4. When you are looking for a product in a grocery store what factors make a brand stand out to you?

1. Ingredient list
2. Aesthetics (the look of a product)
3. Narrative (the story)
4. Food safety and sanitation

5. What platforms do you use to gather information about the latest food trends and trusted information?

1. WhatsApp
2. Facebook
3. Email
4. Instagram and key influencers
5. Youtube
6. TV advertisements
7. Referrals (friends and family)

RETAIL MANAGER/SUPERVISOR SURVEY

1. How have Azuri's dried fruit products been performing (sales velocity)?
2. Tell us about your frequency of interaction with people from Azuri (especially compared to other dried fruit product manufacturers whose products you sell at the store)...
3. How is Azuri's merchandising, do they restock efficiently/effectively?
4. What are some snack trends you have noticed?
5. How important is product variety to customers?
6. What are the demographics of your customers purchasing healthy snacks compared to other snacks?
7. What recommendations or suggestions do you have for Azuri in terms of promotion, packaging and overall performance?

FOCUS GROUP DISCUSSION QUESTIONS

Part I

1. Today's topic is on *Azuri dried fruit products*. What are your first impressions about the packaging, product itself, perceived quality?
2. What do you like best about this specific product?
3. What are your initial reactions-- taste, quality?
4. What would you use this product for and where (probing examples; smoothie, jam... would you mix it up at home, put it in a blender, drink it on the go)?

5. What recommendations would you have for Azuri?
6. How much would you pay for a product like this?

Part II

Product & Price

1. What do you consider to be important when purchasing food product (health, taste, environmental sustainability, traceability, ingredients, chemicals/preservatives, price)?

Placement

1. Have you purchased food products through E-commerce platforms? If so, please describe your experience with purchasing food products through E-commerce platforms.
2. Where do you purchase health foods typically? How would you feel about making these purchases online?

Promotion

1. Do you think advertisements about health foods are effective? Do you think they're trustworthy?

Appendix B

Cornell Kenya SMART Team Data Collection 2019-2020

Adapted Survey Template

I. General Company Background (CEO Interview)

Basic info	
Name of Company	
Name of Owner	
Location	
Year of Start Up	
Start-up Capital	Categorical
Current Value of Assets*	Categorical
Level of sales	Categorical
% yearly Growth of gross sales?	
Initial number of permanent employees	
Current number of permanent employees	
Current number of seasonal/temporary employees?	

- What is the problem or need that you're solving/attending to with your product(s) or service(s)?
- Describe main markets - you can break them down by product(s) or service(s)
- Are there any specific strengths and challenges you would like to discuss?
- Can you expand on your experience as a women-led enterprise?

II. Interviews with company members/employees (subject areas)

- History or story of the company.
- Human Resources and Management Structure
- Procurement/ Inbound Logistics (transport; storage; goods delivery, etc.)
- Operations and Financial Management
- Outbound Logistics
- Marketing and Sales
- Quality and Safety Aspects

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