Enhancing underutilised plant species value chains to improve rural economies: a case study of Baobab in Chimanimani District

By

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Dissertation submitted in partial fulfilment of the requirements for the degree of Master of Business Administration, Graduate School of Management, University of Zimbabwe

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February 2015

DECLARATION

I, **Bridget Matambo**, do hereby declare that this dissertation is the result of my own investigation and research, except to the extent indicated in the Acknowledgements, References and by comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other university.

_____ **Name:** _____ **Date:** _____

Student signature

_____ **Name**: _____ **Date:**_____

Supervisor's signature

DEDICATION

I would like to dedicate this project to my family with particular mention to my husband, Tipei-Tariro, my daughters Tsungiriraimunashe Francisca and Rumbidzaishe and son Tamiriraishe who unreservedly provided their support in data collection in Chimanimani district. I also would like to thank the rest of the family for their understanding when I spent limited time with them during weekends and public holidays to work on the project.

Above all, I would like to thank the Almighty Lord for giving me the strength and perseverance to pursue and accomplish my objective of successfully completing this research project.

ACKNOWLEDGEMENTS

I would like to express profound gratitude to my supervisor, Mr E Makoni for his invaluable support, encouragement and useful guidance throughout this research work.

My sincere gratitude also goes to the HWA-Zimbabwe Business Advisor, Henry Chimboza, the KAITE (Pvt) Ltd CEO, Mr Dominikus Collenberg, Utsanzi Director, Mr Austin Munyavhi and Speciality Foods of Africa Director, Nyarai Kurebgaseka. My heartfelt gratitude also goes to the Chimanimani baobab collectors who participated in the household interviews and Focus Group Discussion during the data collection exercise.

ABSTRACT

Commercialisation of natural plant species is widely recognised as a mechanism for improving food security and income, especially for the rural and urban poor. However, studies undertaken by various researchers have revealed that small-scale producers in the sector face challenges in their natural products enterprises. Baobab collectors in Chimanimani have been harvesting baobab fruit in an organised manner since the 2011/12 season when a private company, KAITE (Pvt) Ltd signed contracts with the collectors. Although the baobab collectors are earning significant income from their baobab enterprise, it was perceived that there were constraints in the baobab value chain.

The researcher conducted a case study among baobab collectors using semi-structured interviews and focus group discussions. Key informant interviews were conducted with the KAITE (Pvt) Ltd CEO and directors of Utsanzi and Speciality Foods of Africa. The aim of the study was to identify the baobab value chain, key actors involved and their respective roles, identify constraints/challenges in the development of the baobab value chain, identify pre-requisites for baobab value chain development and come up with recommendations for improving the value chain.

The study revealed that the baobab collectors experienced constraints during baobab harvesting, processing (which was discontinued in the 2013/14 season), and marketing their produce. The constraints include travelling long distances to collect baobab fruit, lack of value addition, lack of access to financial services, the perceived low price of US$0.20/kg paid by KAITE (Pvt) Ltd for their baobab pulp, and lack of information on prices of baobab powder and baobab oil on the local and export markets.

The baobab value chain needs improvement for the benefit of all actors involved.

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

There is a burgeoning market for novel products in food and beverage, cosmetics, and pharmaceutical industries from natural plants. A dramatic increase in recent years for baobab seed oil and pulp by the food and beverage, pharmaceutical and cosmetics industries in Europe and the United States of America (USA) has been noticed. The Overseas Development Institute (ODI, 2006) has projected that the European market for baobab products could initially generate more than US$750 million annually for producer countries in Southern Africa, making it the highest earner of all traded Non-Timber Forest Products (NTFPs) in the region. With increased volumes, this annual income could rise to an estimated US$1 billion, benefiting over 2.6 million people along the marketing chain (Bennett, 2012).

As in value chains of almost all crops and natural plant species, several factors are responsible for their poor performance and inefficiency, which makes it difficult for actors in the chain to all equitably benefit from commercialisation of the crops or natural plant species. Van de Kop et al (2006) identified market access and transaction problems, information gaps, lack of reliable buyers, lack of capacity at the producer level and discriminatory and unfair pricing, market imperfections and market failures as some of the factors. In the upstream value chains, market information, capital and skills, volume, quality, and consistency of supply are major bottlenecks to especially smallholder farmers (KIT and IIRR, 2006). At the sector level, weak demand, inefficient supply and a combination of the two contribute to poor performance.

A Value Chain describes activities involved in the production of a commodity (conception, production, delivery to final consumer and disposal after use. The SPORE, Special Issue

(2012) lists three main features of a VC as coordination of all links in the chain; added value at each stage; and a market-led approach responding to local, national and international customer demand. Therefore effective value chains are expected to generate profits for all players involved. On the other hand, adding value can benefit all the links in the chain through improving working and social conditions, addressing unemployment, low salaries and food security (SPORE Special Issue, 2012).

Successful VCs involve collaboration at every stage of the chain. Every player in the chain must perceive that they are fairly and equitably treated which results in the elimination of the element of mistrust. This can, however, be effectively achieved through regular information exchange along the chain.

Kirsten and Sartorius (2002) view Value Chain Analysis (VCA) as a vital tool in economic policy development and implementation as it provides an analytical framework for understanding margins of value addition, income distribution, and the levers of market power. According to Kanji et al (2005) VCA is crucial for understanding how markets operate for a particular good.

Value Chain Mapping involves analysing a VC to identify who the key players are, how the sequence works and factors influencing the chain's performance. This can be helpful to pinpoint constraints at all stages of the chain and identify possible solutions (SPORE, Special Issue, 2012).

1.2 BACKGROUND TO THE STUDY

Zimbabwe is endowed with a wide diversity of wild plant species that can be commercialized for livelihood enhancement and poverty reduction. It is estimated that there are nearly 6,000 plant species in Zimbabwe (HWA-Zimbabwe Baseline Report, 2012). Of these, at least 15% (900 species) are traditionally used as food or medicinal plants. Less than 1% is used commercially. In countries like Namibia and South Africa, these wild plants are increasingly becoming a valuable source of livelihoods for many people through household and commercial uses. Wild plants are important in the livelihoods of many poor households in the tropics but their contribution is often not acknowledged in national statistical reporting (Agea et al, 2011).

Wild plants are important to local economies in many ways; they contribute to poverty reduction through enhancing household food security and incomes (Agea et al, 2011). This has proved very successful in South Africa and several West African economies. However, successful commercialisation of wild plants requires robust information, a good policy and institutional environment to be able to boost investor confidence in the sector (Ingram and Bongers, 2009). Commercialisation of underutilised plant species also contributes to biodiversity conservation.

Agriculture is widely viewed as the mainstay of Zimbabwe's rural smallholder economy. This is probably true for people living in Natural Regions 1 to 3 which receive high rainfall. However, for those living in the more arid regions 4 and 5, the reality is more complex. Unpredictable rainfall patterns, poor soils and a regular cycle of drought conspire to severely restrict the agricultural options, and smallholders are forced to rely on a wide range of different livelihood opportunities. One cluster of opportunities revolves around the use of natural plants, both as food species and as commercial crops. Again, despite being a

relatively obvious locus of investment, especially in dry land areas, these opportunities have historically been overlooked in Zimbabwe.

The commercialisation of baobab in Chimanimani district, involving a few private companies in the food, beverage and cosmetic industries, is slowly gaining momentum. It is however, alleged that there are some notable constraints in the baobab value chain as follows:

Although companies in the confectionary, beverage and cosmetic industries in the country are buying baobab pulp from the harvesters, those buying for the export market, semi process the pulp into baobab powder and baobab oil. As a result, no finished baobab products (except baobab oil and baobab powder) are exported to Europe and the United States of America (USA) where the oil and powder are used in the food, beverage and pharmaceutical industries to produce finished products. Prices of raw materials or semi-processed products command lower prices than those of finished goods, hindering the companies from making meaningful profits from their exports.

It is perceived that the sector is also dominated by very few private companies working with and buying from wild collectors. There is therefore need for competition and strengthening the capacities of weaker players in the chains.

Local markets for natural or organic products are very low in Zimbabwe. This could be attributed to lack of awareness amongst local consumers on the benefits of consuming natural plant products and organically certified output. As a result, most produce bought from the wild harvesters by private companies is exported to European countries and the USA.

The baobab fruit is in season for about five months per year, which makes it a seasonal fruit. As a result, buyers of baobab pulp should have significant stocks to cater for out of season periods of the fruit. In order for baobab pulp to have a longer shelf life, it should be

hygienically processed and packaged. Primary producers face problems of consistency of supply and quality of produce.

Players in the value chain usually find it difficult to obtain credit to finance their business activities, hence lack of adequate capital investments since the business is largely perceived by financiers as informal. This has resulted in wild collectors failing to engage in value addition due lack of capital to establish appropriate processing facilities in their communities.

Higher value chain private sector companies are often reluctant to provide information on their operations due to some confidentiality issues in markets and pricing structures. That makes it difficult for other actors in the value chain, especially the baobab harvesters to assess the competitiveness of prices paid for their produce by the companies.

Market information is not readily available to every player in the value chain, especially the baobab harvesters. In addition, the harvesters have limited bargaining power. Kop et al. (2006) identified several factors responsible for poorly coordinated market chains as market access and transaction problems, information gaps, lack of reliable buyers, and discriminatory and unfair pricing. KIT et al (2006) identified challenges faced by smallholders in the upstream value chain as relating to information on markets for the product, capital to kick start production and relevant skills, volume to be produced, quality standards, and consistency of supply.

According to Shahidullah and Haque (2010), closer linkage between the producers and processors could yield a multitude of benefits to producers and processors in terms of price, quality, lead time and overall control of the supply chain. It will be advantageous for wild collectors to have long-standing partnerships and contractual arrangements to supply buyers

of their produce. Development organisations could play a catalytic role in enabling the baobab collectors diversify products and markets for incremental benefit.

1.2.1 SWOT analysis of baobab products

Strengths: Baobab has strength in its nutritional value, potential to generate income and health benefits. Baobab fruit pulp, powder and oil are used in the food, beverages and cosmetic industries. At household level, in some developing countries, the pulp is used to make porridge and drink; the confectionary and beverage industries use baobab powder to prepare products such as mahewu (e.g. Shumba mahewu by Delta Beverages), yoghurt and in different recipes in the confectionary industry and baobab oil is used to make cosmetic soaps, lip balm and scrubs (eg Matsimela and Africa Natural). Baobab commercialisation has potential for job creation. Companies that include Bio-Innovation Zimbabwe, Cluster Agricultural Development Services (CADS), Utsanzi, Four Sessions, Specialty Foods of Africa (SFA) and Organic Africa (OA) are dominating the natural plants commercialisation sector, thereby creating employment, especially for urban dwellers where their processing facilities have been established. However, there is still very low uptake of natural products in Zimbabwe. As a result, a larger proportion of the products find their way into international markets.

Commercialisation of the species generates income and diversifies the livelihood base of rural communities where the fruit is in abundance, which is expected to result in harvesting of the fruit in a non-destructive manner.

Opportunities: There is huge potential for baobab products to contribute to Zimbabwe's Gross Domestic Product if the government supports the sector through development and

effective implementation of sound policies. The acknowledgement of baobab pulp as novel food by the European Union in 2008 and by Baobab Fruit Company Senegal (BFCS) as novel food in 2009 are likely to boost trade of the product in European countries and the USA (De Caluwe, 2011). Baobab is very rich in vitamins and minerals which are much needed by people in developing countries to improve food and health security. International organisations that include the Food and Agricultural Organisation and World Health Organisation have much interest in baobab, not only for improving food and health security, but for poverty reduction. According to Bennett (2006) cosmetics and functional food ingredients are the growth market areas for natural products. Consumers of natural products in Europe prefer low fat products with less sugar and salt content. Baobab fruit pulp has massive potential in European markets due to its nutritional and medicinal properties.

Weaknesses: Lack of recognition of the underutilised species and lack of enforcement of national regulatory framework are some of the weaknesses that hamper commercialisation of baobab and other natural species in Zimbabwe. Some developing countries governments are not even aware of the magnitude of rural people's dependence on natural plants. Consequently, national and/or international level poverty reduction strategies do not often acknowledge natural plants contribution to small producers' livelihoods (Schreckenberg et al, 2006). Competition of baobab pulp with other products may restrict expansion of existing markets.

Threats: Very few developing countries governments are aware of the extent of use and value of natural products by their people. As a result, very little research in underutilised species is conducted due to lack of official recognition and national regulations or policies,

(Ndoye et al, 2004). There is also very low consumer awareness of the nutritional value of underutilised plant species by local consumers, which makes the products appear inferior.

1.2.2 Overview of the state of the baobab value chain in Zimbabwe

In Zimbabwe, baobab is in abundance, mostly in Natural Regions 4 and 5. Traditionally, the fruit is consumed at household level with little or no commercial value attached to it. In Chimanimani district, the commercialisation of baobab is beginning to bear fruit to community members who have shown interest in the activity. Some private companies, which include KAITE (Pvt) Ltd, Utsanzi and SFA commenced buying baobab fruit and baobab pulp from harvesters in Nyanyadzi and Gudyanga wards in 2012. The companies further process the baobab fruit and baobab pulp into baobab powder and baobab oil for sale on both the local and international markets.

1.3 RESEARCH PROBLEM

In Zimbabwe, the full economic values of natural plant species are still not widely recognized and exploited. In addition to this lack of value recognition and priority as a rural economic development option, investments in the sector are hampered by adverse economic conditions and lack of market information. Investors often perceive natural forests related activities as high-risk due to perceived supply challenges in the long-term.

Given that these indigenous plants are locally evolved and adapted, culturally familiar, widely abundant and available and require little in terms of initial investment like agro-inputs, they have the potential to bestow obvious competitive advantages to the local

harvesters or producers. However, without systematic investment and development, they remain underutilised and underexploited.

Efforts are currently being made by NGOs such as Hilfswerk Austria International-Zimbabwe (HWA-Zimbabwe), and private sector companies like KAITE (Pvt) Ltd, SFA, Utsanzi, Four Sessions and B'Ayoba to promote the commercialisation of these natural plant species; but without a systematic and comprehensive value chain approach, the impact will remain negligent and in some cases unsustainable in the long-run. Increasing the availability and accessibility of these plants through their increased production, processing and marketing will generate income for the producer and processor, diversifying the livelihood base and improving the food security of smallholders in dry land areas.

However, it is suspected that there are constraints in the baobab value chain, whose symptoms are reflected through limited value addition at producer and processor levels resulting in low returns to the primary producers and exporters, and low competition among private sector partners working with and buying from baobab collectors. Some of the private sector companies apparently having limited capacities in terms of financial, managerial and marketing skills, local markets for natural or organic products still being very small in Zimbabwe, inconsistent supply of the baobab pulp blamed on the seasonality of the fruit, difficulty in obtaining credit by both collectors and private companies, limited availability of information about the operations of higher value chain private sector companies suspected to be due to some confidentiality issues in markets and pricing structures, and wild collectors also apparently lack market information and appear not to be organised into strong producer groups, thereby limiting their bargaining power.

No known studies have evaluated these problems. The study therefore seeks to enhance under-utilised plant species value chains to improve rural economies, citing the case of baobab in Chimanimani district.

1.4 RESEARCH OBJECTIVES

The global objective of this study is to investigate how the baobab value chain can best contribute towards poverty reduction and greater food and nutrition security at household level in arid areas of Zimbabwe through sustainable harvesting, processing and marketing of natural plant species.

The specific objectives will be to:

1. Identify the structure of baobab value chain and key players involved and their respective roles in the value chain;
2. Identify challenges and constraints inhibiting the setting up of an effective baobab value chain.
3. Establish the pre-requisites for developing the baobab value chain.
4. Make recommendations on how to improve the value chain for baobab.

1.5 RESEARCH QUESTIONS

The research seeks to answer the following questions:

1. What is the structure of the baobab value chain and who are the key players involved and what are their respective roles?

2. What are the current challenges and constraints inhibiting the setting up of the baobab value chain?
3. What are the pre-requisites for developing the baobab value chain?
4. What recommendations can be made on how to improve the value chain for baobab?

1.6 RESEARCH PROPOSITION

The research proposes that it is possible to find out constraints in the baobab value chain that are inhibiting the actors, especially baobab harvesters, from realising full benefits from the commercialisation of baobab in Zimbabwe.

1.7 RESEARCH JUSTIFICATION

Most research on wild species has documented indigenous knowledge, properties and markets (local and export) for the species with less efforts on their value chains. In natural plant species commercialisation, no systematically developed value chains exist. It is therefore crucial that commercialisation of natural plant species is formalised so that the move meaningfully contributes to poverty reduction and livelihood enhancement for local community members. From a conservation perspective, commercialisation and the increase in value of the wild plants can generate positive attitude towards the need to conserve them to guarantee benefits (Marshall et al, 2006). The current study investigates who the key actors in the baobab value chain are, what their roles entail, and what main constraints they face leading to poor exploitation of the value chain. It provides both theoretical and empirical evidence of sources of problems in the value chain through a review of literature and through practical data collected from the actors involved in the day-to-day value chain operations.

An example of how economic initiatives can help reduce poverty and at the same time preserve the environment is the Communal Areas Management Program for Indigenous Resources (CAMPFIRE) which was funded by USAID in the late 1990s. It was a community-based wildlife management project where the community had wildlife conservation responsibility and related management activities. Revenue generated from the project accrued to the communities, resulting in considerable amounts being paid out as direct income to households participating in the project. Part of the revenue was invested in community development projects, for example, electrification of health centres and schools, construction of classroom blocks and installation of piped water in clinics and schools. The project resulted in the near elimination of illegal poaching activities and the establishment of wildlife conservancies.

Literature has shown that although primary producers in some business ventures are the principal actors in the value chain, they however, enjoy the smallest profit margin. The research will therefore look at the key actors in the baobab value chain and their respective roles; discuss the pre-requisites for developing the baobab value chain; and identify challenges and constraints in the baobab value chain development.

The study will be of great benefit to private sector companies intending to invest in commercialisation of natural plant species. They will have insight into the value chains – the key actors and their respective roles, channels of communication in the venture, challenges and opportunities in the chain, risks involved in investing in the sector. It will also be used as literature in future studies by researchers and academics.

The research will also be used as a guide to non-profit organisations when assessing problems and constraints in the baobab value chain development. More importantly, it will benefit the local community members through development of recommendations aimed at addressing challenges and constraints they face in the value chain

The study will enable policy makers and the relevant government ministry to prioritise commercialisation of natural plant species to increase incomes and improve food security for rural people in areas where the plant species are in abundance. Other institutions such as the Forestry Commission and the Environmental Management Agency (EMA) will also be able to identify possible intervention areas to avoid over exploitation and over harvesting of baobab fruit in order to guarantee long-term supplies of baobab produce.

1.8 RESEARCH SCOPE

The study will identify key players in the baobab VC in Chimanimani and their roles, and pre-requisites for developing the baobab value chain. This will be followed by an identification of challenges and constraints that inhibit the development of the baobab value.

1.9 ORGANISATION OF THE DISSERTATION:

Chapter 1 is an introduction into the research subject. It covers the background of the study, research problem, research objectives and research questions, the research proposition, justification for undertaking the study, and research scope.

Chapter 2 will review literature on the subject area of the research. Chapter 3 dwells on the research methodology where presentation of the research design, philosophy and strategy will form the basis upon which primary and secondary data will be collected and analysed. Chapter 4 will involve a presentation, analysis, interpretation and discussion of the research's major findings. The conclusion and recommendations of the research, based on the presentation and analysis of results, will be covered in Chapter 5.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The chapter reviews relevant literature on value chains of and value chain development for underutilised plant species and other commodities/products (the structure of commodity value chains, key actors involved in the value chain and their respective roles), challenges/constraints inhibiting development of commodity/product value chains, pre-requisites for developing commodity/product value chains and how to improve commodity/product value chains. This literature review also analyses experiences from other countries like Namibia, Swaziland, and South Africa where successful value chains have been developed around natural plant species.

Underutilised species are species whose potential for contributing to food security, health, income generation, and environmental services has not been fully exploited (Jaenicke & Hoschle-Zeledon, 2006). They are therefore sometimes called by different names which include orphan, abandoned, underutilized, neglected, underused, traditional, forgotten, and underdeveloped species.

Gruere et al (2006) identified characteristics of underutilised species as (i) locally in abundance in developing countries but globally rare; (ii) scant scientific information and knowledge about them; and (iii) their current use is limited in comparison to their economic potential.

Gruere et al (2006) contend that in a perfectly competitive market, no species would be considered underutilised as all economic actors have complete information about the product, including its price. Economic factors for failure to meet market conditions for underutilised

plant species include (a) missing output market, ie primary producers fail to access markets for underutilised plant species due to a variety of reasons. (b) suboptimal market equilibrium, ie lack of realisation of the commercial value of underutilised plant species and (c) market failures, ie limited use of an underutilised species to reflect its public value. Underutilised plant species can therefore be classified according to four economic criteria, which are: (i) observed and potential value characterization, (ii) output market, (iii) market imperfections, and (iv) market failures. This classification form the basis for the formulation of three necessary conditions for the successful commercialisation of underutilised plant species - expansion of demand, improved efficiency of production and marketing channels, and supply control mechanism or capacity to differentiate from products that are close substitutes.

2.1.1 Importance of natural plant species Value Chain Development in sustaining people's livelihoods and contribution to rural economic development

Promoting natural species value chains significantly contributes to achieving the Millennium Development Goals (MDGs), especially MDG1- Eradicating extreme poverty and hunger, MDG7- Ensuring environmental sustainability, MDG3- promoting gender equality and empowering women, and MDG8- developing a global partnership for development.

Some natural plants are consumed by households as food and also sold to improve income and create employment opportunities. Shanley and Luz (2003) contend that wild plants are used by billions of people because of their low costs, their effectiveness, and the frequently inadequate provision of modern medicine and food alternatives in addition to cultural and religious preferences. These plants create income opportunities for households in rural economies, provide a safety net when other activities fail to provide income and are also important for food security. Natural plant species also enable households to have ready access

to products that they would otherwise have to buy (Jensen, 2009). Depending on the community, cultural practices and location, wild plants are therefore major sources of livelihood but their real economic value is less clear, hardly publicized and highly debated (Angelsen and Wunder, 2003). Studies in Uganda showed that wild plants constituted essential components of the local people's diet, more especially during periods of food shortage and scarcity. Elsewhere, it is reported that poor households rely on natural plants as an alternative to cultivated food plants for a quarter of food supplies during a dry season in Zimbabwe (Agea et al, 2011). Wild plants are also used by the majority of people in developed countries because of their effectiveness, low cost, inadequate provision of modern medicines and food alternatives.

The development of natural plant species value chains has helped improve livelihoods, rural economies and contribution to Gross Domestic Product (GDP) in Namibia, South Africa and elsewhere. Cunningham (1997) puts annual income from *Prunus africana* trade per year for Tanzania at US$240,000- US$1,200,000. In India, wild plants generate US$700 million annually in Madhya Pradesh and US$115 million annually in Maharashtra (Osman *et al*, 2000). Exports of natural products in Namibia realised about US$3.3 to 4 million in 2008, with Devil's claw alone representing roughly 90 per cent of all indigenous natural plants (Exports Green economy sectoral study – BioTrade: A catalyst for transitioning to a green economy in Namibia, 2012). In South Africa, rooibos contributed USD69 million to the country's gross domestic product in 2009 (http://www.bdlive.co.zw/articles/2010/09/09/rooibos-1) visited on 25 October 2014. In Zimbabwe, US$375,399 was ploughed into rural communities of Chimanimani, Chivi and Binga between October 2011 and December 2014 through a pilot project meant to explore the

potential of the natural species commercialisation sector by a private company called KAITE (HWA final evaluation report, 2014 (unpublished)).

Crabb (2004) estimated the annual global market for herbal remedies alone at US$23 billion. However, varying results have been produced from attempts to quantify household incomes from wild plants trade. This depends on factors such as proximity to markets, currency strength, diversity, abundance of resources available and opportunity costs (Shackleton and Shackleton, 2006). Narendran et al (2001) as cited in Barirenga et al (2012), reported over 50% of total household income while Ambrose-Oji (2003) reports less than 20%.

The value chain approach also helps to promote the concept of Access and Benefit Sharing (ABS), where all players, especially the communities, realise benefits from the use of God given resources. Proper value chain development will result in mutually beneficial commercial linkages amongst all the players, hence promote sustainable business relations between communities and the private sector even without external facilitators like NGOs.

2.1.2 The Baobab and its uses

The baobab (*Adansonia digitata L.*) is called by several names such as the magic tree, chemist tree, symbol of the earth, upside-down tree and monkey bread of Africa. It is estimated that the baobab takes between eight and twenty-three years before the baobab tree produces seeds. A mature plant can produce more than 160-250 fruits per year (UNCTAD, 2005). Baobab grows in very hot regions, and in stony and dry woodland places with low rainfall. In Zimbabwe the species is in abundance in most parts of natural regions 4 and 5.

Throughout Africa the baobab is regarded with awe by most indigenous people; some even consider it bewitched (Wickens and Lowe, 2008). The species is renowned for its nutritional and medicinal value. According to Buchmann et al (2010) more than three hundred traditional uses of the baobab have collectively been documented in Benin, Mali, Zimbabwe, Cameroon, the Central African Republic, Kenya, Malawi, South Africa and Senegal. Consequently, there is increased pressure on the baobab due to its commercialisation and export of fruit pulp and seed oil to European countries and the United States of America.

The bark, leaves and seed are used to treat almost any disease that include malaria, tuberculosis, infections, diarrhoea, fever, dysentery etc. Other uses include fruit for food; oil from seeds; rope, and cloth from bark fibre; tanning from the bark for curing leather; glue from the pollen grain of flowers; seasoning and as an appetiser (Nhukarume et al, 2008).

Recently, baobab has been referred to as a “superfruit” based on its nutritional profile (Gruenwald, 2009). The level of vitamin C contained in fruit pulp is high and can range from 2.8 to 3 g/kg (Vertuani et al, 2002). It was noted that baobab fruit pulp has very high vitamin C content (280–300 mg/100 g), which is seven to ten times more than oranges (51 mg/100 g) (Manfredini et at, 2002). One study demonstrated that the consumption of 40g of baobab pulp provides 100% of the recommended daily intake of vitamin C in pregnant women aged 19 to 30 years (Chadare et al, 2009). The ascorbic acid content was evaluated in the fruit of A. digitata and it was found to contain 337 mg/100g of ascorbic acid (Gebauer et al, 2002).

Findings on the calcium content in the baobab fruit pulp varies among authors and the origin of the samples. Brady (2011) reported a calcium content of 344.2 mg/100g sample which differs from the value of 295.0 mg/100 g reported by Osman (2004). Similarly, the potassium

level in the fruit pulp was found to be 1578.5 mg/100 g sample (Brady, 2011) and 1240.0 mg/100 g (Osman, 2004). Baobab leaves have high calcium content. They also contain a lot of proteins which is estimated to be 3 to 5 times more calcium than milk.

Baobab oil has several uses. It is used to treat skin ailments, thus it may have some cosmetic applications (Sidibe and Williams, 2002). It is suitable for use on the skin as it is non-irritating and non-allergenic (Wren and Stucki, 2003). Its high nourishing and penetrability properties makes baobab oil excellent for skin restoration and re-moisturising. A number of vitamins essential for skin care are found in baobab oil. These include vitamins A and F (rejuvenation and cell renewal); vitamin E (anti-oxidant and anti-ageing effects) (Nyam et al, 2009) and vitamin D3 which increases calcium absorption and decreases blood pressure in the elderly (Wasserman, 2004).

Baobab is highly sought after in the food and beverages sector in Germany, France and The Netherlands; and the nutraceutical as well as the natural cosmetics sector in the European Union, USA and Japan. A survey conducted in Germany showed that 73% of the Germans would buy food and drinks with anti-oxidant properties. Natural health and cosmetic products are in great demand in North America, Europe and Japan. The turnover of botanical remedies and dietary supplements almost doubled from US$12.4 billion in 1994 to US$20.3 billion in 2003 (UNCTAD, 2005). Due to the high demand for commercial baobab products in EU and United States, this tree with its edible fruits needs to be conserved and treasured (Sanchez et al, 2010).

2.2 VALUE CHAIN THEORETICAL FRAMEWORK

Weijers et al (2006) view a value chain as the full range of activities that are required to bring a product from its origin, through different phases of production, to its final customer. Processes involved in the value chain include production, transformation, processing and trading activities until consumption of the product by the consumer. Value chains are one of the instruments through which market forces can be harnessed to benefit poor rural women and men – not just producers, but wage earners, service providers and others (http://www.ifsf.org/english/market/index.htm) visited 25 October 2014.

Ferrand et al (2004) contend that getting a product from producer to final consumer requires many individual transactions in Africa than in more developed countries. This is due to the large number of intermediaries and the small size of transactions involved.

The value chain concept is a systems approach that evolved over time drawing from different disciplines (da Silva and de Souza Filho, 2007). Michael Porter developed the value chain analysis in the mid 1980's as a tool for identifying the value of each step in the production process of a product as illustrated below.

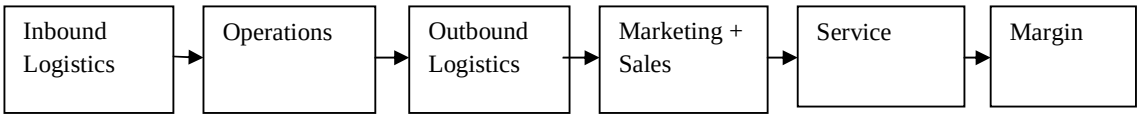

Figure 2.1: Michael Porter's Generic Value Chain
Source: Roduner (2004)

Porter's value chain concept relates to the activities carried out by a firm with its competitive position. His value chain is important in identifying the value created at all steps in the production of a product, and how strategically a firm should position itself in the market and in relation to its suppliers, buyers and competitors. Organisation of firms can be in accordance to their primary activities (inbound and outbound logistics, operations, marketing and sales, and service) and support activities (procurement, technology development, human resource management and infrastructure). Value creation and the firm's competitive position will depend on the systematic arrangement of the activities.

Porter, however, argued that sources of competitive advantage cannot be detected by looking at a firm as a whole. The firm should rather be disaggregated in a series of activities. Consequently, he identified (a) primary activities which directly contribute to add value to the production of goods and services and (b) support activities which have an indirect effect on the final value of the product (van den Berg et al, 2009). Roduner (2004) contends that these activities offer the customer a level of value that exceeds the cost of the activities thereby resulting in a profit margin.

IFAD's work on value chains has shown that reducing poverty through value chain development must have four objectives which are raising prices at the farm gate; building strong, inclusive farmers' organisations; reaching out effectively to women and the poorest social groups; and lowering prices to the consumer by improving chain efficiency (http://www/ifad.org/english/market /index.htm) visited on11 November 2014.

2.3 THE REGOVERNING MARKETS PROGRAM AND THE CHAINWIDE LEARNING METHODOLOGY

2.3.1 The Regoverning Markets Program

The Regoverning Markets Program aims to provide guidance and strategic advice on the dynamic local and regional markets impact on small-scale producers. Wholesalers, retailers, and food processing businesses contribute significantly to the way in which food supply chains are governed. As a result, the aim of the Re-governing Markets Program is to support various sectors of the economy to anticipate and manage rapidly changing environment (Vermeulen et al, 2008). Exploratory studies which led to the development of a 3-year program (2005-2008) collaborative research and policy support were undertaken in seventeen countries. Nine regions worldwide are covered by the program and a regionally-based consortium member leads each region. Applying the program to the baobab value chain will be helpful in supporting actors involved to yield maximum benefits through effective management of the chain.

2.3.2 Chainwide Learning Methodology (CWL)

The Chainwide Learning Methodology is a concept which was developed to instigate solutions which involve dialogue amongst value chain actors, particularly for agricultural market inclusion (Vermeulen et al, 2008). It is an analytical methodology to be applied in a multi-stakeholder process (MSP). Six activities (as shown in the diagram below) are crucial for understanding how different institutions and policies affect small-scale producers in an entire value chain. The CWL builds on Porters value chain analysis strategic management tool. It also exhibits a strong component of multi-stakeholder processes. The mapping given in Figure 2 below could well typify wild species value chains such as that of the baobab fruit.

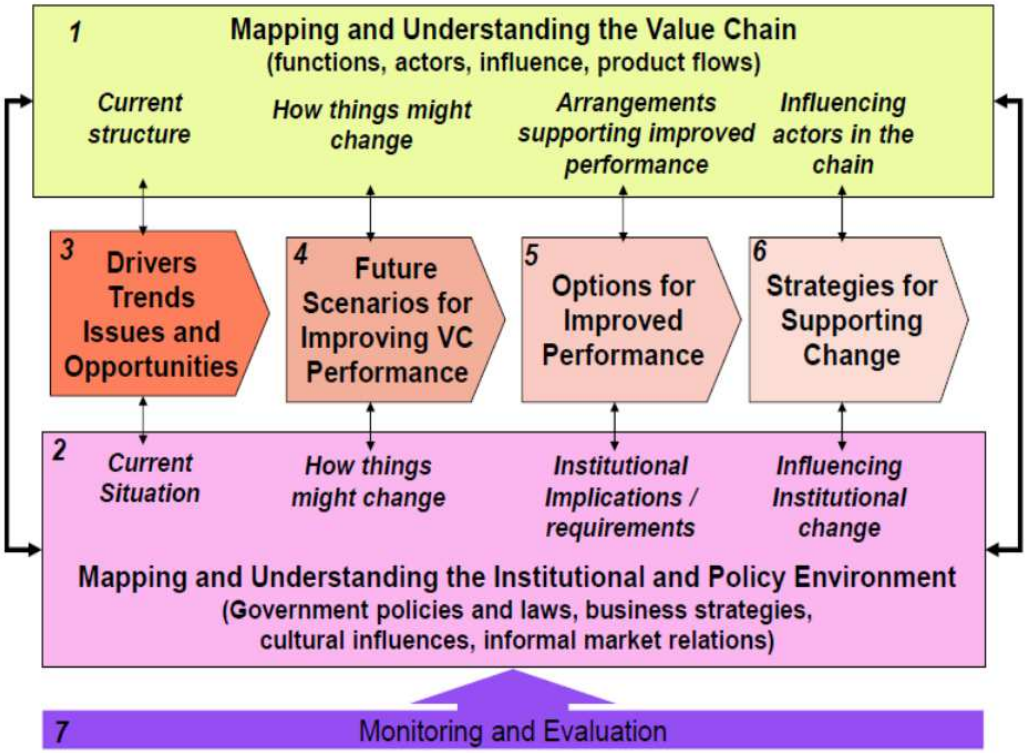

Figure 2.2: Steps in Chainwide Learning
Source: Vermeulen et al (2008)

In Fig 2.2 above, activity 1 involves mapping and understanding the value chain (current structure, how things might change, arrangements supporting improved performance, and influencing actors in the chain). Activity 2 involves mapping and understanding the institutional and policy environment (current situation, how things might change, institutional implications/requirements and influencing institutional change. Activity 3 looks at drivers, trends, issues and opportunities and links them to the current structure and current situation. Activity 4 considers future scenarios for improving value chain performance by assessing how things might change. Activity 5 dwells on options for improved performance by taking into consideration arrangements supporting improved performance and institutional implications and/or requirements. Activity 6 looks at strategies for supporting change by

identifying actors in the chain and influencing institutional change. All the 6 activities should however be frequently monitored and evaluated.

2.3.3 Stakeholder analysis

A stakeholder analysis is carried out to: (a) identify all those (people, groups or institutions) who might be affected by an intervention or can affect its outcome; (b) mobilize key stakeholders, building up common awareness and creating ownership; (c) better target interventions and approaches, identify local institutions and processes upon which to build; (d) provide a foundation and strategy for participation; (e) as a tool to predict and/or manage conflicts; (f) to make a start with understanding needs and interests of the key stakeholders; and (g) identify opportunities (Vermeulen et al, 2008).

There are two tools for carrying out stakeholder analysis: (a) actor analysis matrix and (b) the influence and importance matrix. The actor analysis matrix is a component of Rapid Appraisal of Agricultural Knowledge Systems (RAAKS). The objective of carrying out an actor analysis is to determine the degree of power and impact of the various stakeholders in the value chain. The influence and importance matrix seeks to assess the influence and importance of each actor in the value chain so as to determine the ones to retain or eliminate from the value chain.

Below is an influence and importance matrix:

Influence and Importance Matrix

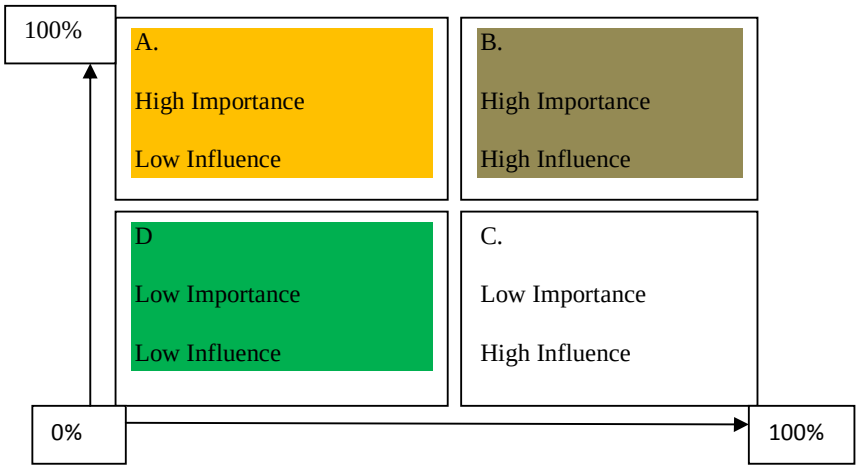

Table 2.1: Influence and Importance Matrix
Adopted from Vermeulen et al (2008)

Some actors in the VC could have high importance but low influence (for example, small-scale producers).They should therefore be protected. In Box B we have actors with high importance and high influence. These could be buyers of the smallholders' produce (collectors and private companies). Such actors should be involved in the value chain. Box C contains actors with low importance but highly influential. An example is a rural district council which has control of organisations operating in its district. The actors should be handled with care. In Box D we have actors with low importance and low influence. These should be neglected.

2.3.4 The Chainwide Learning Methodology in practice

The methodology can be used, among other uses, to address issues in a specific value chain. For example, suppliers, transporters, wholesalers and retailers may be experiencing coordination challenges in the value chain and opt to use the CWL methodology to come up with possible solutions to the problem, and retailers may want to improve their business with

small-scale producers through exploring ways of improving current relationships with small-scale suppliers. Consequently, the interested party should initiate a multi-stakeholder process. It may, however, not be possible to involve all parties in the MSP, so actor initiating the process has to identify, depending on the problem to be solved, who to engage. The step-by-step process as shown in Figure 2 will be followed.

2.3.4.1 Mapping the value chain

The activity is important for developing a shared understanding of the flow of products in the value chain, key actors involved and value-adding process in the value chain.

2.3.4.2 Mapping the institutional and policy environment

The activity involves the identification of the critical institutions and policies for the inclusion or exclusion of small-scale producers. It is crucial to identify institutions and in the value chain and how they affect the inclusion or exclusion of small-scale producers, how the identified institutions function, and incentives for retailers to procure from small-scale producers.

Below is the Value Chain and Institutional Map for the Tomato Market in South Africa.

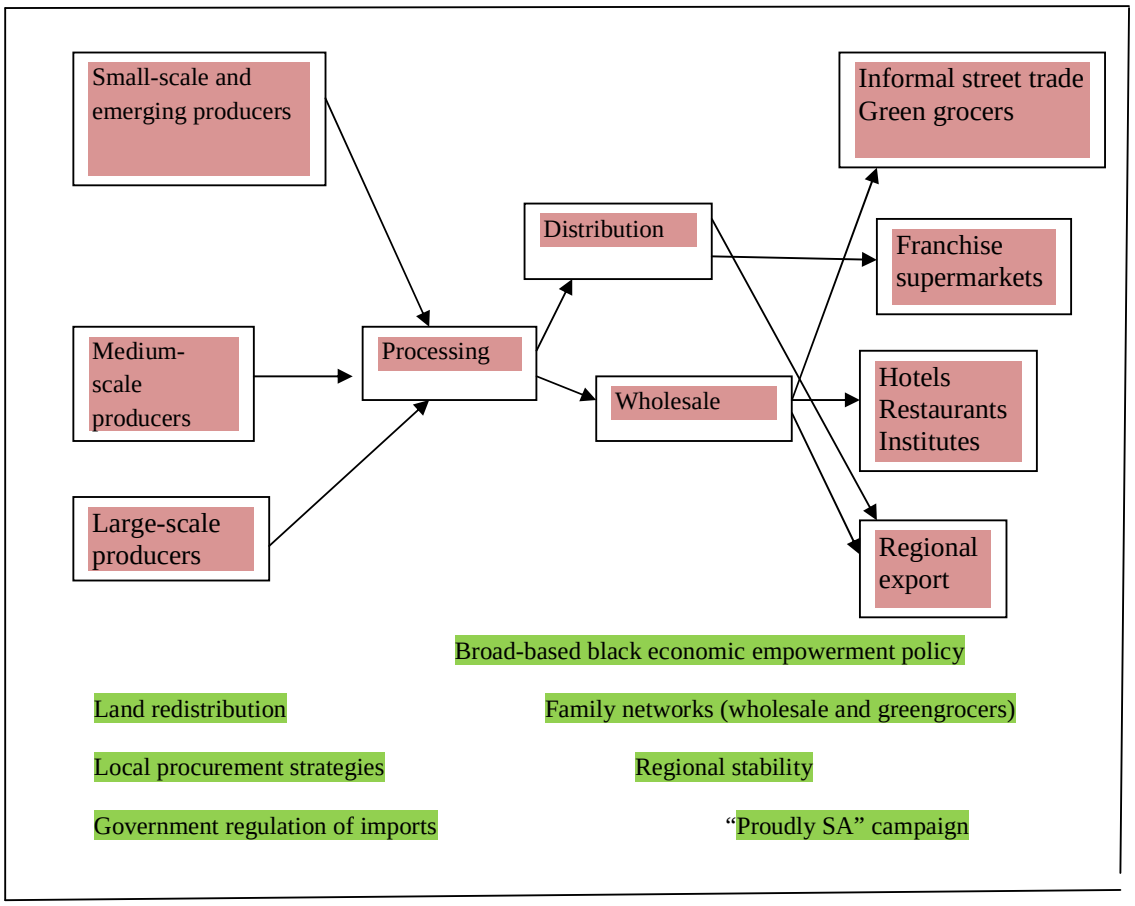

Figure 2.3: Value chain and institutional map: the tomato market in South Africa
Source: Vermeulen et al (2008)

Key institutions (marked green) in the tomato value chain in South Africa have been mapped as government which has the mandate to implement the land redistribution program, all businesses (have to observe broad-based black economic empowerment policy), two private sector strategies (local procurement and Proudly South African), and government imports regulation.

2.3.4.3 Mapping drivers, trends, issues and opportunities

The activity is carried out in order to understand the market environment for the value chain under examination. Outputs from the activity include key drivers, trends and a table listing issues and opportunities for different stakeholders. Sample questions on the key factors that drive changes in markets at national, regional and internal level are formulated; current trends in markets and how they affect different actors, and crucial issues for different stakeholders are then formulated**.**

2.3.4.4 Mapping future scenarios

The activity involves exploring the future of markets for small-scale producers based on the dynamism and uncertainty of current markets. Questions to be asked will be looking at the future position of small-scale producers in the near to medium-term and long-term, anticipated major uncertainties and risks in demand and supply, and whether production by small-scale producers will be feasible in the future given the major trends.

2.3.4.5 Mapping options for better inclusion

Having explored activities (a) to (d), it becomes feasible to come up with opportunities and barriers to smallholder inclusion in the value chain and develop possible interventions. Three outcomes from the activity include a force field analysis of opportunities and barriers, cause-and-effect diagrams explaining reasons for opportunities and barriers, and summary of key options for the small-scale producers' inclusion.

2.3.4.6 Mapping strategies to support change

Realistic strategies to bring about desired change can be produced. The two possible outputs include an action plan for participants or a stakeholder action matrix.

2.4 VALUE CHAIN STRUCTURES

A better understanding of factors that impact on the long-term profitability of an organisation can be achieved by applying the value chain concept. According to Gloy (2005), the value chain can help us answer questions regarding how the products of an organisation reach the final consumer, the structure (economic relationships) between players in the chain, how this structure is likely to change over time, the key threats to the entire value chain, and the key determinants of an organisation's share of the profits created by the chain. Figure 4 shows a simplified value chain for a commodity/product showing the market types and key actors involved.

2.4.1 A simplified value chain

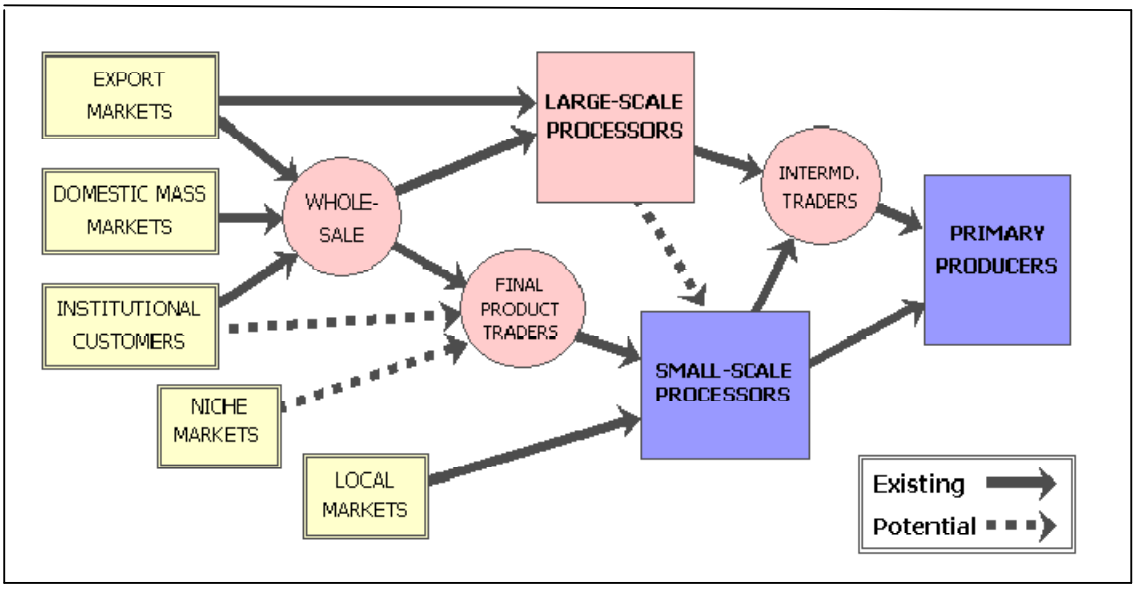

Figure 2.4: Simplified value chain
Source: Adopted from Hellin et al (2005)

In the diagram above, primary producers are receiving income from their markets (where they sell their produce), which is the opposite of what actually transpires in the conventional flow of goods and services. This counterintuitive view exhibits a demand-led perspective (Gloy, 2005).

2.4.2 Value chain for natural plants

The value chains for wild plants are broken down into several segments including collection/production, transport, storage, processing, marketing and sale and the relative importance of each of the chain segment differs for different plants (Kusters et al (2006) as cited in Barirega et al (2012). Marshall et al (2003) noted that for some plant species, they may not occur sequentially; some may even be repeated or omitted for particular products, particularly for locally traded wild plants and/or their derivative products, and some are very short and simple with harvesters selling their products directly to consumers. The value chains of different species differ as some can be quite long with as many marketing stages (where value addition occurs) and others short. Long value chains are usually complex and dominated by middlemen and intermediaries.

Describing of wild plants value chains is important to address governance issues that relate to commercialisation and value chain improvement. The governance arrangements in a value chain have critical implications on how values are determined and benefits are distributed in the value chains (Kusters et al, 2006).

The generic value chain of natural plants is made up of several players as shown in Figure 2.5 below.

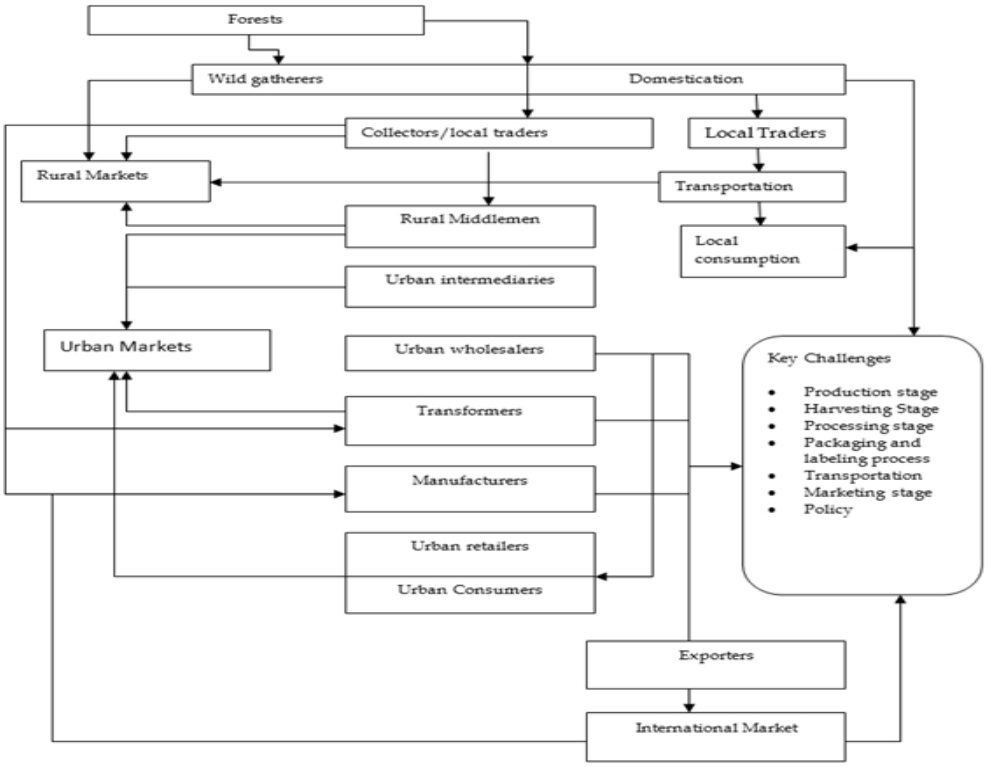

Figure 2.5: Generic value chain of natural plants
Source: Adopted from Ahenkan and Boon (2010)

The players in the value chain include wild gatherers, local traders/collectors, rural middlemen, urban intermediaries and wholesalers, transformers, manufacturers, urban retailers, urban consumers, and exporters. The length of the value chain, however, depends on the number of actors involved for a particular species.

2.4.3 Value Chain of baobab pulp in Mali

The value chain of baobab pulp in Mali is made up of gatherers, wholesalers/collectors, retailers, processors, petty traders, caterers/retailers and consumer as shown in Figure 6 below.

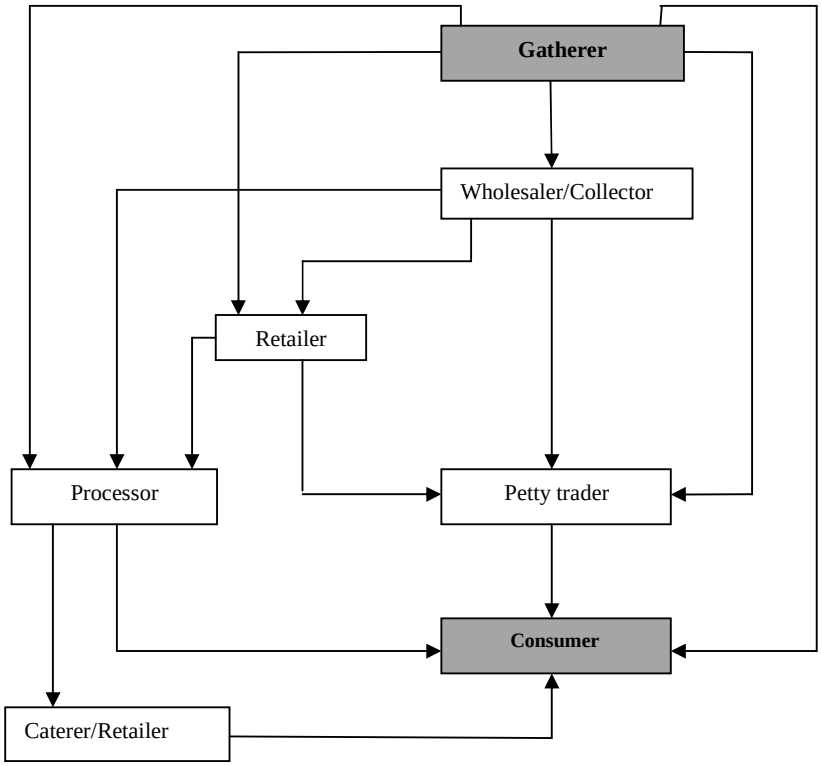

Figure 2.6: Market map of Baobab pulp in Mali
Source: De Caluwe (2011)

In Figure 2.6 above, gatherers harvest fruit from the wild and sell it to wholesalers and collectors. Retailers buy produce from the wholesalers and collectors and sell it to processors and petty traders. Consumers buy products from processors, retailers and petty traders

2.4.4 Value chain for agricultural products

Gloy (2005) identified the value chain for agricultural products which involves input supply, agricultural production, first level handling, processors, wholesalers or distributors and consumers as shown in Figure 6 below.

Figure 2.7: A typical value chain for agricultural products
Source: Gloy (2005)

The value chain for agricultural products starts with input supply to make agricultural production feasible. After harvesting, first level handling is crucial to avoid post-harvest losses. The produce is sold to processors who in turn sell to wholesalers. Wholesalers sell to retailers and the final consumers buy products from retailers.

The global agribusiness value chain involves input companies, farmers, traders, food companies, retailers and consumers as shown in Figure 7 below.

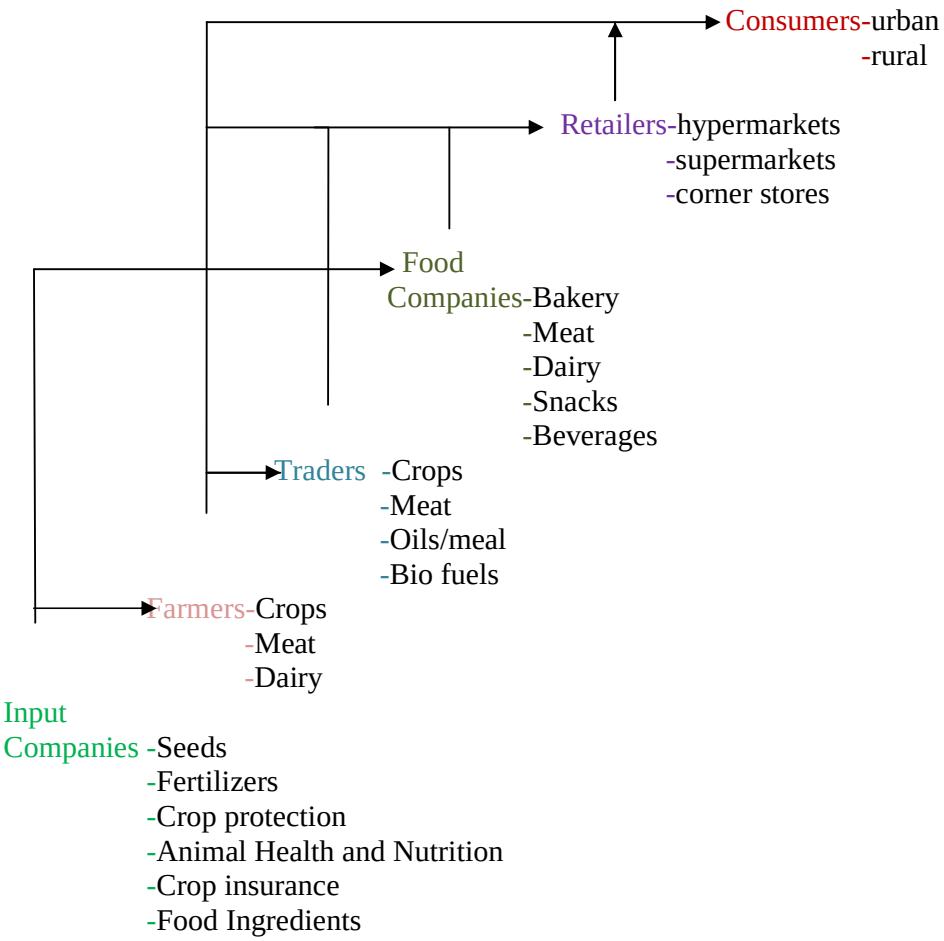

Figure 2.8: The agriculture and food value chain
Source: KPMG (2013)

The value chain is made up of various agricultural input companies, farmers (in the crops, meat and dairy farming), traders (in crops, meat, oils/meal and bio-fuels business), food companies (in the bakery, meat, dairy and beverages industries) retailers (supermarkets, hypermarkets and retail shops) and consumers (rural and urban).

2.5 VALUE CHAIN ACTORS

Identifying key players and their corresponding roles in a value chain is usually done through mapping the chain, which enables removal of impediments in the chain and the chain structure improved through exclusions, inclusions and bridging (Barirega et al, 2012). Value chain actors are those individuals or institutions that conduct transactions in a particular product as it moves through the value chain (Hellin et al, 2010).

Players in the natural plants value chain include wild gatherers, collectors or rural traders, urban intermediaries and urban wholesalers, transformers, manufacturers, urban retailers, urban consumers, and exporters. In his study of the baobab value chain, De Caluwe (2011) identified the different actors participating in the baobab market chains in Benin and Mali as gatherers, traders, processors and consumers. Gatherers are part of a family or household, traders which include ‘large' traders (wholesalers) and `small' traders, processors whose principal activity is processing baobab into various products, and consumers (in the local and export markets).

Hamilton (2004) observed that producers, traders, manufacturers and consumers are the main actors participating in the medicinal plant market system. Laird (1999) found that in most cases the chain structure is poorly integrated.

In the agribusiness and food value chain, the main actors are input companies which provide agricultural inputs, farmers who are involved in actual production of crops and other agricultural produce, traders who buy produce direct from farmers, food companies which

also buy from farmers, retailers who buy from farmers, traders and food companies, and rural and urban consumers who consume the final products.

Value chain actors for agricultural products include seed suppliers, farmers, traders, processors, transporters, wholesalers, retailers, and final consumers.

2.6 ROLES OF VALUE CHAIN ACTORS

In the baobab value chain, gatherers of baobab fruit are usually resident in rural areas where collection of the fruit occurs. This is confirmed by De Caluwe (2011) who asserts that natural species gatherers are rural smallholders. Collectors and assemblers buy baobab produce from gatherers and resell to other traders. Wholesalers tend to rely much on collectors and assemblers (De Caluwe, 2011). She observed that wholesalers supply urban markets processors and retailers.

In the agriculture and food value chain, input companies provide agricultural inputs that include seeds and fertilisers and food ingredients; farmers produce crops, meat and dairy products such as milk; traders buy (crops, meat, oils and bio-fuels) direct from farmers and sell to food companies which in turn produce meat and dairy products, snacks and beverages. Traders also sell to retailers who sell to hypermarkets, supermarkets and corner stores. Rural and urban consumers consume the final products.

Government institutions develop policies and enforce effective implementation of those policies. Private sector and civil society work with relevant government institutions and observe policies relevant to their operations.

2.7 VALUE CHAIN CHALLENGES AND CONSTRAINTS

The major challenges/constraints encountered in value chains of various commodities/products include particularities of the species to be commercialised, lack of competition along the entire value chain by actors, private and public service providers having limited knowledge about appropriate technology to promote underutilized species, inappropriate rural development policies on a limited number of species, and mistrust among value chain operators as well as between public and private stakeholders.

2.7.1 Particularities of the species

Generally, people are used to cultivating cash crops (also termed as major crops) such as maize, groundnuts, beans and horticultural produce rather than natural plant species. Those crops are perceived to be superior to natural species in terms of product properties (quality, taste and smell); production, processing and storage properties; marketability (a lot of consumer awareness is required for natural species products); environmental properties (adaptability to changing environmental conditions); research and development capabilities; and globalization effects. This is confirmed by findings by Will (2008).

2.7.2 Lack of access to financial services

KPMG (2013) noted that there are limited credit facilities, especially to primary producers. De Caluwe (2011), in her studies of baobab and tamarind value chain actors that there was no access to formal financial services such as loans and insurance, especially by wholesalers, traders and processors. Her findings have been confirmed by the HWA-Zimbabwe mid-term review report (2013) (unpublished) that in Zimbabwe, people in rural areas do not have title deeds for their land ownership. It is therefore difficult for smallholders to access loans from banks and/or other financiers due to lack of collateral security. The review also revealed that

natural species produce is seasonal, which renders income from the business is also seasonal. Consequently, banks and other financiers are not comfortable to lend money to the wild collectors to enable them expand their business activities.

2.7.3 Investment climate in the country

The investment climate complexity poses a challenge to commodity/product VCD. This could be a result of policies failing to promote markets development, coupled by insufficient knowledge of appropriate policies, business registration, collection rights licensing and food standards, among others. Although relevant laws and regulations exist, for example in Zimbabwe, enforcement is often a challenge due to under-resourced government institutions, the inadequacy of public utilities and economic infrastructure resulting in low productivity and low processing facilities utilisation, and where public services exist, lack of capacity, financial services and innovative approaches for effective outreach often compromise research efficiency, extension or community services.

Benefits from natural plant species commercialisation have been adversely affected by the economic challenges experienced in the country since 2000. Private sector companies involved in the sector are struggling to sustain their business ventures under the prevailing economic conditions (HWA Mid-term Review, 2013 (unpublished)).

2.7.4 Legal framework conditions for natural products

These include the United Nations (UN) Convention on Biological Diversity (CBD) and the revised Novel Food Regulation (NFR) of the European Union (EC). CBD's objective is to ensure equitable sharing of genetic resources benefits. The EU-Novel Food Regulation restricts the trading of "novel foods" in European markets. This is enforced as a measure to ensure food safety for consumers.

2.7.5 Limited value addition at both producer and processor levels

It is perceived that little or no value addition occurs to underutilised species at both producer and processor levels. According to the HWA Mid-Term Review, 2013 (unpublished), natural plant produce exported from Zimbabwe (for example, gotu kola, devil's claw and rosella) has very little value added.

2.7.6 Lack of bargaining power by collectors/producers

The absence of marketing options by small-scale producers tends to reduce their bargaining power and they end up being price-takers. Commercialisation of wild plant species comes with many economic benefits generally to the national economy but particularly to the people involved in trade (Shippmann et al, 2002). However, many times distribution of these benefits are skewed with the grassroots people like the wild collectors getting fewer benefits compared to the middlemen and other players higher in the value chain (Belcher and Schreckenberg, 2007). Riddihough & Jones (1996) noted that such a long value chain contributes to the low prices that primary producers receive for their products. According to studies by IFAD, coffee growers in Uganda were earning just 0.5 per cent of the retail price to consumers in London. For fresh vegetables grown in Africa for export to Europe, about 27 percent of the final price went to the retailer, while producers earned just 12 per cent for mangetout peas grown in Zimbabwe and 14 per cent for vegetables grown in Kenya (http://www.ifad.org/english/market/index.htm). Studies by Shahidullah and Haque (2010) on medicinal plant production with livelihood enhancement in Bangladesh revealed that profit margin from 59% to 139% and 22% to 90% at the middleman wholesale levels respectively along the value chain, Processors of medicinal plants bought products which were 109% to 358% higher than the primary producers' selling price.

2.7.7 Inconsistency in supply of natural products

Most natural plant species are seasonal. For example, in Zimbabwe, baobab fruit is in season for five months only (May-November). As a result, there are no supplies by collectors between December and April. This is confirmed by the KAITE (Pvt) Ltd 2013 annual report (unpublished).

2.7.8 Information and knowledge gaps

It is critical that competitive prices are ensured through making information available, creating options, strengthening bargaining capacity and harvesters and vendors taking responsibility for the management of their resources and complying with sustainable harvesting techniques (Shahidulla and Haque, 2010). Key industry players are reluctant to disclose information on their businesses to other actors in the value chain. They withhold information on their prices and costs and prefer to protect their data from competitors and from outsiders (Shahidullah and Haque, 2010).

2.8 PRE-REQUISITES FOR DEVELOPING EFFECTIVE VALUE CHAINS

Value chain development can be achieved through supporting chain actors financial, technically, and building their understanding of market chains. Will (2008) identified the following steps to VCD of underutilised species: careful selection of a species on the basis of its economic, social and environmental potential; undertaking an analysis of the value chain system (value chain mapping); identifying entry points with emphasis on opportunities and constraints/challenges hampering value chain development; implementation to strengthen value chain competitiveness; monitoring progress and refining the strategy if necessary.

2.8.1 Selection of a species to be promoted

The selection depends on an assessment of a species and its prospective market potential (market opportunities, supply potential and complementary and substitutes). Will (2008) identified the following criteria to apply to the selection of the species (a) potential for poverty reduction and social benefits (relevance to the small-scale producer and income generation potential, relevance for food security and social inclusion); (b) biological diversity and characteristics (conservation potential, propagation methods, access to appropriate technology, potential yields, perishability, value, nutritional value); (c) growth potential and competitiveness in the local, regional and international markets (current market demand, unused competitive advantage, potential geographical expansion); (d) prospects of success (economic and/or other benefits, low investment requirements, potential product diversification, possible use of by-products and conducive environment); (e) consumers to be reached; and (f) potential relevance for economic indicators, for example, returns on investment potential contribution to Gross Domestic Product (GDP), in exports and overall employment creation.

2.8.2 Value Chain Analysis and Value Chain mapping

Value chain analysis involves identifying benefits for stakeholders, entry points for value chain development and coming up with viable value chain development upgrading strategies. According to Seep Network (2006), participation of all stakeholders complemented with research where necessary, is very crucial for value chain analysis. Value chain analysis is carried out to analyze the structures of the value chain system for competitiveness. That involves stakeholders' identification (value chain operators, value chain supporters and value chain enablers) and networks already in existence, an analysis of all stakeholders' roles and responsibilities, an assessment of the structures between different stakeholders, and economic

analysis (market potential, return on investments and distribution of profits among operators in the value chain). The species' biodiversity conservation and relevance for pro-poor growth need to be assessed. The essence of the species to the small-scale producers should reflect not just monetary income but its benefits to supporting nutritional value, employment, food security as well as medicinal uses.

2.8.3 Assessment of opportunities and identification of entry points

Opportunities and challenges must be identified for value chain development. Once identified, opportunities can be exploited and solutions to overcoming challenges formulated.

2.8.4 Development of an upgrading system

This stage involves designing an upgrading strategy which specifies the value chain development vision, leverage points to be addressed, proposed solutions, indicators to measure progress and relevant stakeholders and their responsibilities and capacities for value chain development. Implementation of strategy will be guided by an action plan and a steering committee to coordinate the value chain development process.

2.8.5 Implementation of the upgrading strategy, monitoring of progress and refinement of the strategy

Stakeholders in the value chain have responsibility for implementation of the VCD strategy. As a result, a participatory approach right from selection of the species to be promoted to strategy development has to be adopted. According to (Gruere et al, 2007a) as cited in De Caluwe (2011), prerequisites for all recommended interventions for All stakeholder participating in the chain development should have the will, motivation, incentive and capacity to conduct a specific action. The participatory approach helps stakeholders fully

understand their respective roles in VCD in addition to committing resources to implementation of the strategy.

2.8.6 Structure building and capacity development

Will (2008) identified four levels to structure building: (a) structures at the level of value chain operators (micro-level) including input suppliers, producers, processors, wholesalers, retailers and consumers. These include horizontal cooperation at the same value chain stage (e.g. groups and associations), vertical cooperation at the same value chain operators (at subsequent nodes of the value chain) and lateral cooperation with businesses providing product-related services. (b) structure at the level of value chain supporters (meso level) with private and public service providers offering non-financial services such as business development services and financial services such as short-term and long-term investment financing. (c) structure at the value chain enablers (macro-level). Framework conditions include polices such as sector, conservation and poverty reduction policies; legislation (for example, environmental protection and market levies) and economic and social infrastructure (for example, markets), and (d) structure at the level of value chain attitudes (meta-level) such as social norms (for example trust facilitating, collective action and limiting free-rid); and social and economic exchanges.

2.8.7 Adopt a participatory approach to VCD

A participatory approach enables both private and public stakeholders determine and understand their respective roles in the VCD. The approach motivates the stakeholders to assume responsibility and avail requisite resources to the intervention strategy.

The value chain development process depends on the particularities of the species, need for in-depth analysis, commitment and capacities of stakeholders (value chain operators, value

chain supporters and value chain enablers), prevailing social structures and norms and relevant resources (Will, 2008).

2.9 HOW TO IMPROVE COMMODITY/PRODUCT VALUE CHAINS

Collective action is crucial for creating market access for smallholders (Kwaschik et al, 2010) as cited in De Caluwe (2011). It increases small-producers and processors bargaining power (Bienabe & Sautier, 2005). Producer groups could overcome the high transaction costs by producers (Kruijssen et al, 2009). They can also improve producers' access to resources.

Conducting value chain analysis enables better understand value chains and improve them. In order for a value chain to be efficient, it is crucial to support smallholders to become competitive chain actors by ensuring that they have the basic assets (e.g. financial, physical, human and social capital, and natural resources); improving their production and management skills; and building their understanding of market chains, competition, consumer demands, farmers organisations and contracts (KIT et al, 2006).

Employing upgrading strategies for value chains improves value chains. Mitchell et al (2009) came up with different upgrading strategies which include horizontal coordination, vertical coordination, functional upgrading, process upgrading, product upgrading, inter-chain upgrading and 'upgrading ' of the enabling environment.

Mitchell et al (2009) define horizontal coordination as the process of greater intra-nodal organisation, often in the production and processing nodes, in some form of collective structure (typically a producer group). Horizontal coordination is advantageous to small-scale

producers as it allows them to achieve supply economies of scale and also reduce transaction costs.

Vertical coordination promotes long-term inter-nodal relations (for example, contract farming arrangements between a food processing company and a farmer growing certain crops).This upgrading strategy guarantees future revenue flows. According to KIT et al (2006) smallholders may increase their income by combining business activities. That can be achieved by investing resources in higher productivity, better quality and specialisation.

Functional upgrading involves either increasing (upgrading) or reducing (downgrading) the number of activities performed by individuals and companies. It usually happens when a small-scale producer (for example, a farmer) adds value to their produce. Process upgrading involves improving value chain efficiency by increasing output volumes or reducing costs per unit of output.

The product upgrading strategy is becoming increasingly important in richer economies due to quality consciousness and increase in standards emanating from lead buyers, statutory hygiene standards in importing countries and also in response to fairtrade and organic requirements by final consumers. Inter-chain upgrading involves the application of skills and experience acquired in a value chain to productively engage with another value chain. An example is that of a smallholder farmer who used to grow traditional crops and later shifted to production of high value crops for the export market. The strategy poses a challenge to the poor smallholders to access the lucrative value chain.

‘Upgrading’ of the enabling environment calls for a competitive enabling environment which contributes to the success of value chains. Improvements to the support, services, institutional, legal and policy frameworks in which the value chains operate are often a productive area in which development agencies can intervene to improve the functioning of a chain (Mitchell et al, 2009).

Other strategies to improve value chains include (a) trading up - stronger trade relations. Small-scale producers are encouraged to strengthen their chain relationships with traders.
(b) trading up, which involved building stronger market institutions.

2.10 CONCLUSION

For the purpose of this study the following framework will be used:

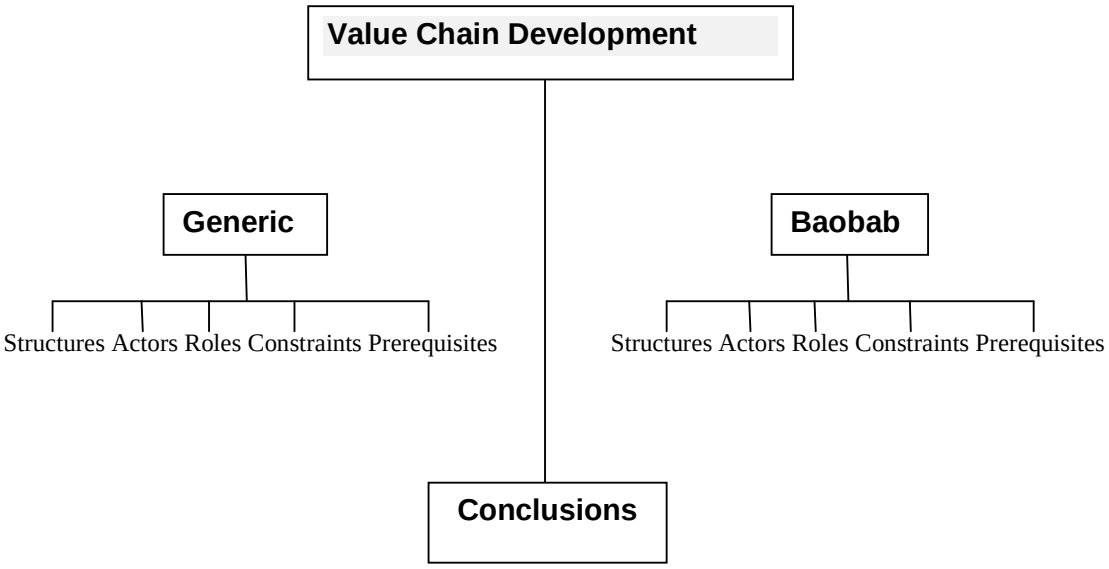

Figure 2.9: Framework for the study

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The chapter presents the methodology which was adopted for the study. The main data collection tools used were the semi-structured interviewer-administered questionnaire, and Focus Group Discussions (FGD) and Key Informant Interviews (KII) Guides.

The researcher used the Rapid Participatory Market Appraisal (RPMA) technique for value chain mapping in order to identify actors in the baobab value chain in Chimanimani district and their respective roles.

A total of 37 baobab collectors were interviewed in Hotsprings and 25 in Gudyanga wards using the semi-structured interview questionnaire. The collectors were selected using stratified random sampling. Three FGDs sessions comprising of 15 participants each were conducted in Hotsprings (2) and Gudyanga (1) wards. Value chain mapping was carried out during FGD interviews.

3.2 RESEARCH PHILOSOPHY

Saunders et al (2003) contend there are two approaches to research which they call positivism and phenomenology. The research philosophy is based on the phenomenology philosophy perspective and not on the positivism philosophical paradigm which strongly recognizes quantitative measures as the benchmark for assessing dependent and independent variables subject to the research. The research sought to consider the attitudes, beliefs, feelings and perceptions of the selected baobab collectors regarding their baobab production enterprise.

3.3 RESEARCH DESIGN

The researcher used a case study approach to understand the structure of the baobab value chain, actors involved and their respective roles, the challenges and constraints inhibiting development of an effective baobab value chain, and the pre-requisites for establishing the baobab value chain. Data was collected from baobab collectors in Chimanimani district baobab collectors in Hotsprings and Gudyanga wards using structured interviewer-administered questionnaires, FGDs and KIIs guides.

Qualitative research is used to gain insight into underlying motivations and reason. Its advantages are that new or unexpected aspects can be revealed, and secondly it provides insight into the context of the research subject (Saunders et al., 2003). The researcher used qualitative research methods in order to come up with useful conclusions in respect of the study.

3.4 RESEARCH STRATEGY

Data was collected from baobab collectors in Hotsprings and Gudyanga wards using structured questionnaires and FGDs. The semi-structured questionnaires were administered through personal interviews by six interviewers at designated points in the two wards. Three FGDs (2 in Hotsprings and one in Gudyanga) comprising of 15 respondents each were also conducted during the data collection exercise. KIIs were held with the KAITE (Pvt) Ltd Chief Executive and directors of Utsanzi and Speciality Foods of Africa in Harare. In addition, Rapid Participatory Market Appraisal (RPMA) approaches were applied for value chain mapping with the respondents.

3.5 POPULATION AND SAMPLING TECHNIQUES

The population is the group of interest to the researcher. It includes all individuals whom the researcher is interested in obtaining relevant information and making inferences on. The researcher would generate the results of the study from the group (Fraenkel and Wallen, 1996). The population to which the researcher is able to generalize is the study population (Saunders et al, 2003). It is extremely important to define the population because it helps the researcher in selecting a sample for study (Labovitz and Hagedorn, 1976). The population for this study comprised baobab collectors/harvesters in Chimanimani district.

The participants making up the population were from Hotsprings and Gudyanga wards of Chimanimani district. HWA-Zimbabwe, a local NGO which works with KAITE (Pvt) Ltd and Bio-Innovation Zimbabwe availed its database (consisting of 674) baobab collectors to the researcher. A sample of sixty-seven baobab collectors (representing 10% of the population) was selected using the stratified random sampling technique. The sample size satisfies assertion by Saunders et al (2003) that a ten percent sample size gives a correct representation of the total population under the study.

The semi-structured questionnaire was pilot tested by the six enumerators to five respondents a day before commencement of the interview exercise and necessary corrections were made to the questionnaire. The researcher was then left with 62 respondents for the semi-structured interviews and the FGDs.

All the sixty-two respondents were interviewed in a total of three days. The response rate augurs well with the assertion by Saunders et al (2003) that a response rate of 60-80% for interviewer-administered questionnaires in phenomenological research is sufficient to allow the researcher to gather valid and reliable data that is representative of the population.

3.6 SAMPLING PROCEDURE

The researcher used stratified sampling to select a sample of 67 respondents from a population of 674 baobab collectors in the HWA-Zimbabwe database. The sampling frame comprised 420 baobab collectors from Hotsprings and 254 from Gudyanga wards in Chimanimani district. The baobab collectors were therefore divided into two strata (Hotsprings and Gudyanga). Selecting a 10% sample of baobab collectors using systematic random sampling resulted in Hotsprings having 42 and Gudyanga 25 baobab collectors respectively

The researcher selected stratified random sampling because it has very high chances of reducing the potential for human bias in the selection of objects to be included in the sample. Secondly, stratified sampling represents not only the overall population but also subgroups of the population such as minority groups, assuming that there is limited missing data. This enables the researcher to compare strata and make more valid inferences from the sample to the population. Relative to the simple random sample, the selection of units using a stratified procedure can be viewed as superior because it improves the potential for the units to be more evenly spread over the population. Furthermore, where the samples are the same size, a stratified random sample can provide greater precision than a simple random sample. Because of the greater precision of a stratified random sample compared with a simple random sample, it may be possible to use a smaller sample, which saves time and money (http://dissertation.laerd.com/stratified-random-sampling.php) visited 12 February 2015.

However, stratified random sampling can only be carried out if there is a complete list of the population, delineated into each stratum. Sometimes it may be difficult to gain access to the population list and there may not be a single list detailing the population of interest to the researcher.

3.7 RESEARCH PROCEDURE

The researcher obtained secondary data regarding baobab collection in Chimanimani from KAITE (Pvt) Ltd and HWA-Zimbabwe. The information enabled the researcher to decide on how best to structure the data collection tools (questionnaire, focus group discussions and key informant interviews guides).

A pilot test of the semi-structured questionnaire and FGDs guide were conducted with five respondents a day before commencement of the actual information gathering exercise and edits to the instruments were done. Interviews with respondents were conducted at designated points by the six interviewers. Three value chain mapping exercises were conducted with respondents soon after the FGDs at the designated data collection points.

3.9 RESEARCH LIMITATIONS

The major constraint to the researcher was time for data collection. To overcome the constraint, the researcher recruited five enumerators to assist with data collection. The enumerators received relevant training from the researcher before the actual data collection from the baobab collectors.

It was also not possible to bring all the value chain actors together for value chain mapping. However, the researcher ensured that appropriate questions which enabled collection of all relevant data on the baobab value chain (key actors, structure of the value chain, identifying constraints faced by the baobab collectors in the value chain and proposing possible solutions to overcoming identified bottlenecks in the chain) were include the data collection tools. The researcher is satisfied that the data collected was adequate to address the research objectives.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 INTRODUCTION

The chapter presents the research findings and an analysis of the results of the study conducted among baobab fruit collectors in Chimanimani district. According to the database of Hilfswerk Austria International (HWA), there are 674 baobab collectors in Hotsprings and Gudyanga wards of Chimanimani district. The research results are based on a ten percent sample of the baobab collectors. The sample comprises 42 and 25 collectors from the two wards of Hotsprings and Gudyanga respectively. The results of the study were used to address the research objectives through presentation, analysis, interpretation and discussion of the study findings.

The four objectives to be addressed by the study were, firstly to identify the structure of the baobab value chain and key actors involved and their respective roles. This was followed by identification of challenges and constraints inhibiting the setting up of the baobab value chain. The research went on to establish the pre-requisites for developing an effective baobab value chain. Finally, the research gathered the attitude, perceptions and views of the respondents on the harvesting, processing and marketing of baobab produce in Chimanimani.

4.2 DESCRIPTION OF BAOBAB COLLECTORS SURVEYED

4.2.1 Demographic profile of baobab collectors in Chimanimani

Research findings showed that 81% of the sampled baobab collectors were females while 19% were males.

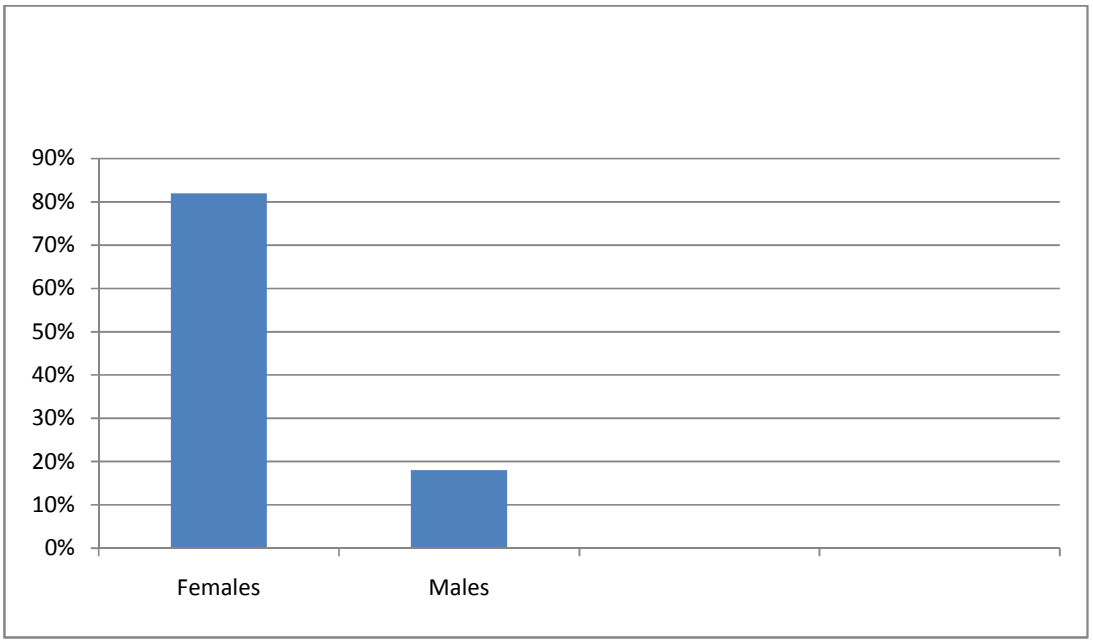

Figure 4.1: Sex of respondents

This clearly shows that females constitute the majority of the respondents. This confirms findings by Ahenkan & Boon (2010) that women are mostly traders of baobab and tamarind products. It is also generally accepted that natural products are traded by women because traditionally the trade is viewed as a marginal activity. The higher number of female respondents than male respondents could be attributed to the fact that in Chimanimani, most males are involved in mining activities (Chiyadzwa Diamond mine and gold panning). As a result, women remain at home to take care of their children.

4.2.2 The age distribution of respondents

The majority of the respondents (81%) were in the 20 to 49 years age group. This suggests that the people are mature and experienced in baobab collection. This also shows that the age group is the most productive in baobab collection in Chimanimani. Respondents in the age group are determined to travel long distances to collect baobab fruit. This positive attribute

by the age group will go a long way in generating additional income to the collectors' households.

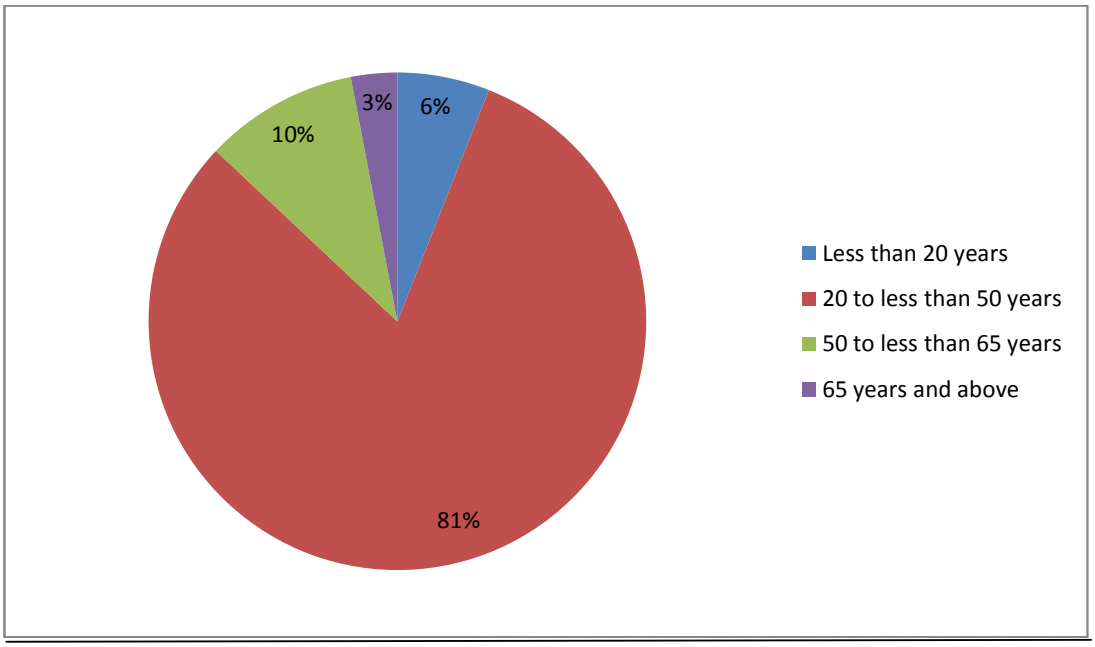

Figure 4.2: Age distribution of respondents

4.2.3 The level of education of respondents

The level of education of the respondents ranged from primary to diploma with 49% of the respondents having reached secondary school education level. This therefore suggests that the majority of the baobab collectors in Chimanimani have secondary school education. The research results are a reflection that even people with higher education participate in baobab collection and that people with higher education view baobab production as a gap-filling enterprise as fruit harvesting occurs during lean period (May to November). This is also a reflection that there are fewer livelihood options in the district.

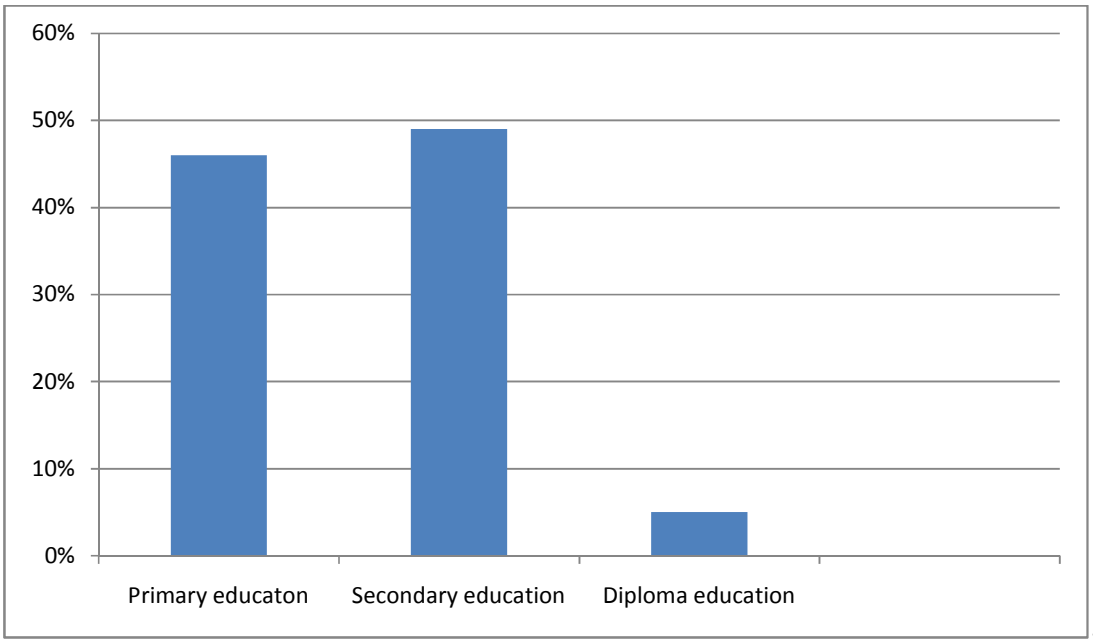

Fig 4.3: Level of education of respondents

4.3 VALUE CHAIN ACTORS WHO INTERACT WITH BAOBAB COLLECTORS

The research revealed that all the interviewed respondents had entered into agreements with KAITE (Pvt) Ltd to sell all their baobab produce to the company. Side marketing was strongly discouraged by KAITE (Pvt) Ltd. As a result, there is a ready market for the baobab collectors produce. The research also showed that KAITE (Pvt) Ltd has an Extension Executive (the equivalent of Field Officer) for its operations in Chimanimani district. Unfortunately, the Extension Executive was not interviewed as he was said to be in Harare on official duty. The Extension Executive sensitizes community members on the project. Those interested in the project undergo training in sustainable harvesting of baobab, hygienic processing and storage, product quality management and record keeping before signing a contract with the company. The collectors are organised in groups and a lead collector is nominated (by other collectors) for each group. The lead collector liaises with the KAITE (Pvt) Ltd Extension Executive on all issues related to the project.

The respondents went through activities involved in baobab harvesting processing and marketing with the interviewers during FGD interviews. The following were outcomes of the discussion:

4.3.1 Baobab harvesting

Individual collectors harvest the baobab fruit from trees at their homesteads and in the wild. Collectors are trained to only pick fruit from the ground which will have ripened. That avoids overharvesting and destruction to the tree. The collectors transport the fruit from collection points (depending on quantities) to their homesteads using wheelbarrows or scotch carts. The fruit is neatly packaged in 50kg sacks and tags with the collector's name are attached to the sacks. The fruit is stored in a dry room that is away from smoke. When the group of collectors has accumulated reasonable quantities of the fruit, the lead collector for the group asks the KAITE (Pvt) Ltd Extension Executive to come and collect the fruit. The fruit is then collected from the lead collector's homestead and delivered to the KAITE (Pvt) Ltd processing centre at Nyanyadzi Business Centre where processing of the fruit takes place. The information provided by the respondents in interviews and FGDs was confirmed by the KAITE (Pvt) Ltd Chief Executive (CEO).

4.3.2 Baobab processing

The research showed that KAITE (Pvt) Ltd commenced its operations in Chimanimani during the 2010/11 baobab season. Baobab collectors processed baobab at designated points (at the lead collector's home) in their communities in the 2010/11, 2011/12 and 2012/13 seasons. In the 2013/14 season, all baobab processing was done at the KAITE (Pvt) Ltd processing centre following some produce contamination reports. Interviewers were apprised by the respondents that at the processing centre there are electric machines for dehairing the fruit. Fruit cracking and removal of baobab pulp are done manually. KAITE (Pvt) Ltd employs 15

people (who are also baobab collectors) to carry out the processing of baobab fruit. Each collector's produce is weighed soon after processing and its value calculated. The collectors receive cash for their produce. The KAITE (Pvt) Ltd CEO confirmed that the company pays US$0.20 per kg for the baobab pulp. The interview also revealed that the company determined the price based on costs involved in the transportation and processing of the baobab fruit to the processing centre. The baobab pulp is then delivered to the KAITE (Pvt) Ltd processing centre in Christon Bank where the pulp is processed further into baobab powder and baobab oil.

4.3.3 Baobab marketing

The semi-processed products are sold to companies that include Utsanzi, Four Seasons and SFA for making jam, juices and body oil. The products (made by the companies) are sold to local retailers (including supermarkets) and the final consumers buy from the retailers. An interview with the KAITE (Pvt) Ltd CEO revealed that the company exports about 85% of its baobab oil and baobab powder to markets in Europe and the USA. The baobab oil and baobab powder are used in the pharmaceutical, beverage and food industries. The Utsanzi and SFA directors mentioned that they buy baobab oil and baobab powder from KAITE (Pvt) Ltd because they do not have the capacity (especially appropriate equipment) to process baobab pulp into baobab oil and baobab powder. The two companies have been buying baobab products from KAITE (Pvt) Ltd since the beginning of 2012.

The respondents were asked to identify the markets for their produce. Interestingly, the respondents are aware that KAITE (Pvt) Ltd semi-processes all the baobab pulp purchased from them into baobab oil and baobab powder at its processing centre in Harare. They also

know that some of the baobab oil and baobab powder are sold to local processors that include Utsanzi, SFA, AfriDeli and Four Seasons and the rest are exported.

KAITE (Pvt) Ltd is very particular about product quality standards. Consequently, the collectors receive frequent trainings in product quality management from the company. In addition, the company has set up a system to track the owner of any baobab produce that does not meet the required quality standard.

The respondents also identified actors they interact with in the baobab value chain, including the roles played by the different actors. A diagrammatic presentation of the value chain actors who interact with the baobab collectors is shown in Figure 4.4. The figure shows the results of baobab value chain mapping exercise that was carried out during FGDs with the collectors.

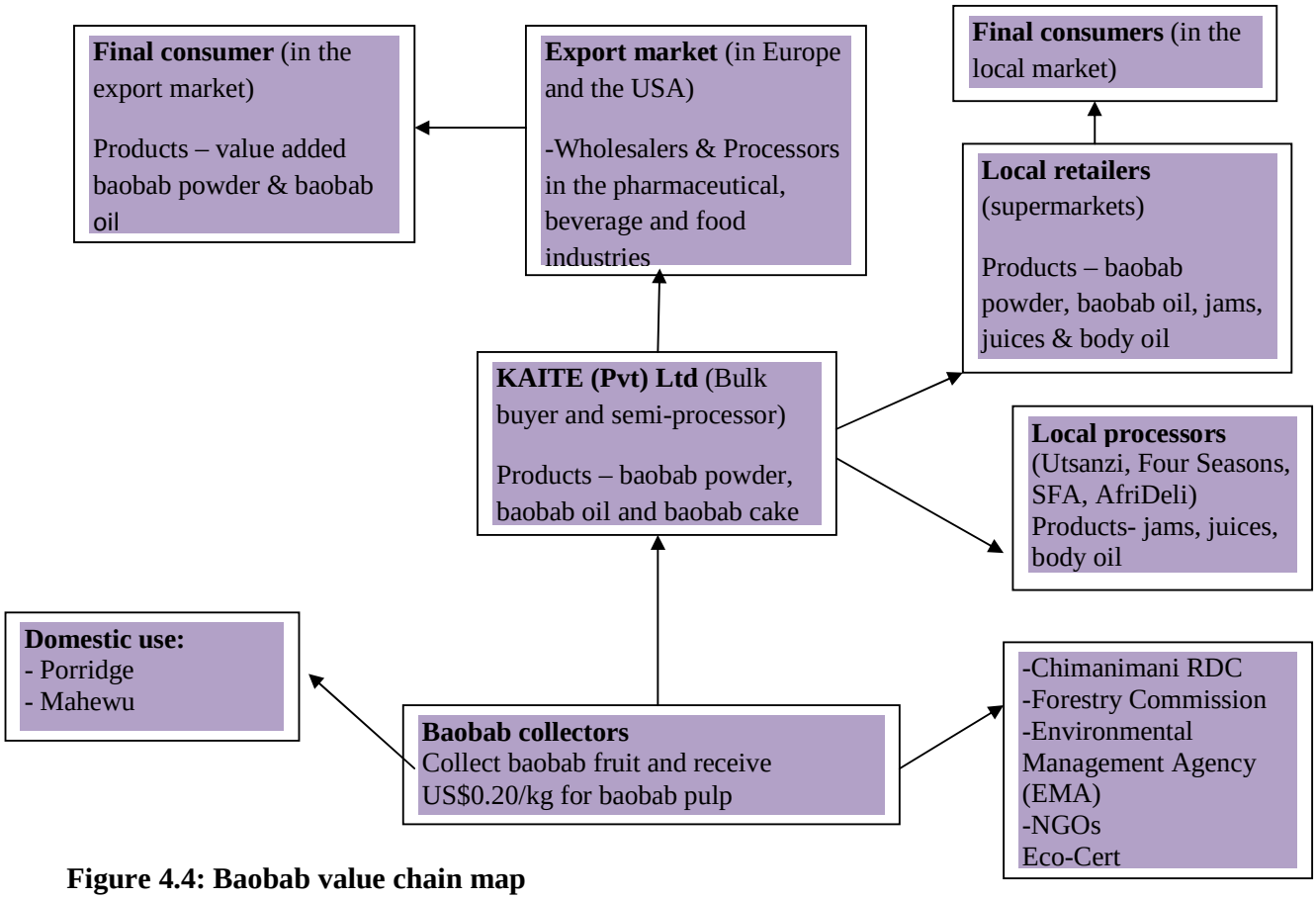

Figure 4.4: Baobab value chain map

Apart from KAITE (Pvt) Ltd, the baobab collectors also interact with Chimanimani Rural District Council, Forestry Commission and the Environmental Management Agency (EMA) on environmental conservation issues. They also interact with NGOs such as HWA-Zimbabwe and World Vision that promote livelihoods projects in the district and ECO-Cert, a South African based organic certifying company. PhytoTrade Africa, a non-profit trade association promoting sustainable production and fair trade for southern African natural products usually visits the collectors once per year for fairtrade certification inspections.

Fig 4.5 shows the frequencies of interaction by respondents with the stakeholders in Chimanimani district. The respondents spend more time with the Forestry Commission officers, followed by EMA district representatives. This means that Forestry Commission and EMA are seriously pursuing environmental management issues in the district to ensure that there is not overexploitation or harvesting of baobab.

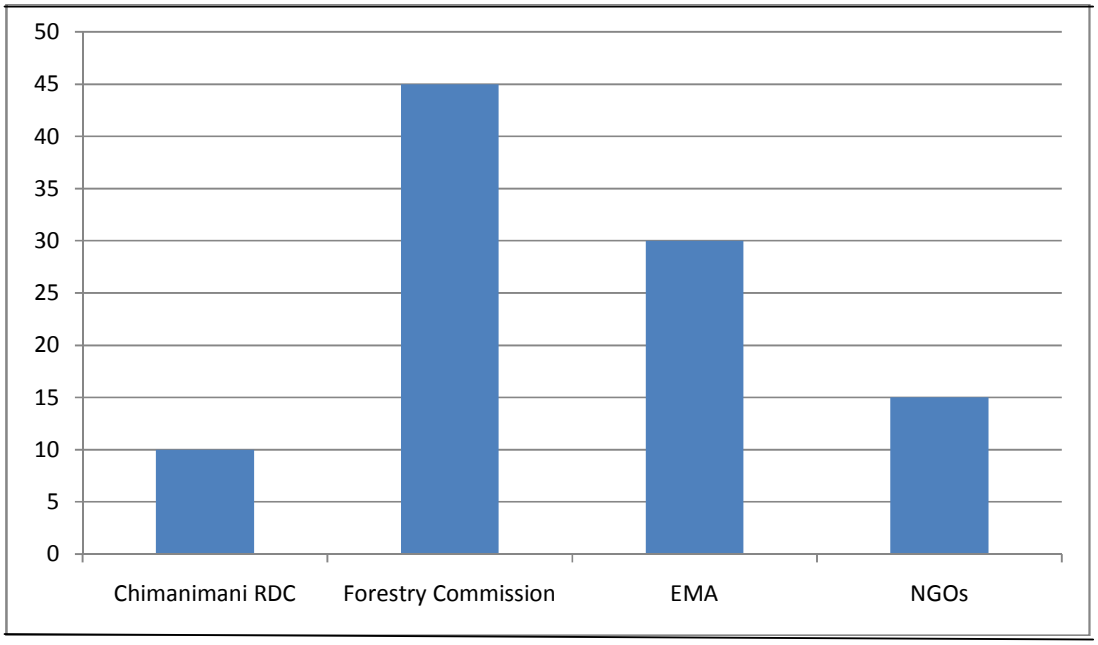

Figure 4.5: Other actors who interact with baobab collectors

4.4 CONSTRAINTS INHIBITING DEVELOPMENT OF BAOBAB VALUE CHAIN

Objective 3 of the research was centred on identifying constraints inhibiting development of the baobab value chain. The constraints include particularities of baobab, lack of access to financial services, the investment climate in the country, legal framework for natural products, limited value addition, lack of bargaining power, inconsistency in produce supply and information gaps. The 62 respondents were interviewed in pursuance of the objective. Findings from FGDs also augmented the interview results. Table 1 below shows responses by the respondents.

Probable bottleneck	Strongly Agree (%)	Agree (%)	Not Sure (%)	Disagree (%)	Strongly Disagree (%)
Particularities of baobab	69	21	10	0	0
Lack access to financial services	89	11	0	0	0
Limited value addition	78	22	0	0	0
Inconsistency in produce supply	84	16	0	0	0
Investment climate in the country	81	11	8	0	0
Legal framework for natural products	75	21	4	0	0
Lack of bargaining power	85	15	0	0	0
Information gaps	21	79	0	0	0

Table 4.1: Constraints inhibiting development of baobab value chain

The collectors were asked to express their views to the extent to which they regarded particularities of baobab as a constraint to their baobab production enterprise. 82% of the respondents mentioned that they strongly agreed and 12% agreed that particularities of

baobab was a contraint to inhibiting the development of the value chain. This shows that, regardless of the nutritional and medicinal properties of baobab, many people do not appreciate baobab products. In their definition of underutilised species, Gruere et al (2006) identified three characteristics of underutilised species as (i) they are in abundance in developing countries locally and scarce globally; (ii) there is lack of knowledge and scientific information about the species; and (iii) there is not much use of the species compared to their economic potential. This suggests that people lack interest in baobab products. Therefore marketing baobab products requires vibrant campaigns, especially for the local market.

Respondents were asked to express their perceptions of lack of access to financial services as a bottleneck to the development of the baobab value chain. The findings were that 89% of the respondents strongly agreed and 11% agree that access to finance is among the major constraints for baobab value chain development. Findings from the two FGDs showed that the baobab collectors could not get financial services such as loans from financial institutions because they did not have collateral security. This suggests that there are very limited chances of baobab collectors engaging in value addition activities due to lack of access to financial services. Consequently, they remain restricted to baobab fruit collection. This was confirmed by Ahenkan and Boob (2011) who assert that inadequate finance to kick start NTFPs enterprises is a hindrance to the small-scale producers. The Key Informant Interviews conducted with the KAITE (Pvt) Ltd CEO and the two directors of Utsanzi and SFA also confirmed that access to financial services was a major constraint in the development of the baobab value chain. They all concurred that the sector was fairly new in Zimbabwe and therefore financial institutions did not want to risk losing funds to activities they were not convinced would yield profits in the short-to- medium-term.

Respondents were asked to express their perceptions on the extent to which they viewed limited value addition as a challenge to their baobab production enterprise. Research findings showed that 78% of the respondents strongly agree and 22% agree that limited value addition is a challenge to the development of an effective baobab value chain. This concurs with observation by Kozanayi (2012) that formalisation of baobab commercialisation has brought a number of costs and benefits to different actors. He contends that baobab collectors tend to be at the lower end of the value chain where they semi-process baobab fruit into baobab pulp. Limited value addition is disadvantageous to baobab collectors as they do not get maximum returns from commercialisation of the species. The survey also revealed that in the 2011/12 and 2012/13 baobab seasons the respondents were involved in baobab harvesting and baobab processing activities in their communities. In the 2013/14 baobab season, the arrangement was changed following some reports of baobab pulp contamination. Baobab collectors harvested baobab fruit and all of it was processed by KAITE (Pvt) Ltd at their processing centre in Chimanimani. Therefore the baobab collectors are no longer involved in value added activities.

Research results showed that 84% of the respondents strongly agreed and 16% agreed that inconstancy in produce supply was a major constraint to their baobab production enterprise. This shows that baobab produce supplies are available during a certain period of the year. This is so because of the seasonality of baobab fruit which in Chimanimani is in season from May until November. The collectors therefore earn income from the enterprise during that period. The response was augmented by the FGDs, which revealed that supply of baobab produce heavily depends on weather patterns. Baobab trees do not flower well if there is a drought and produce lots of flowers and big fruit during a good rainy season (HWA mid-term

review report, 2013). Heavy debarking of baobab trees and black soot disease upsurge also contribute significantly to reduced quantities of baobab fruit harvested by baobab collectors.

Regarding the respondents perceptions on the extent to which they viewed the investment climate in the country as a constraint to the development of the baobab value chain, research results show that 81% of the respondents strongly agree, 11% agree and 8% were not sure that the prevailing investment climate in the country is a bottleneck to their baobab production enterprise. The findings from FGDs also confirmed the findings as respondents pointed out that no investor would want to invest in the natural species commercialisation sector which is still in its infancy. They also cited the challenge of fairtrade certification for novel products on European markets as another requirement discouraging investors in the natural products sector. The findings were confirmed by the HWA final evaluation report (2014, unpublished). These findings suggest that the investment climate in the country is a constraint to the baobab collectors in Chimanimani. Nonetheless, there could be significant investment in the natural products sector if the investment climate in the country dramatically improves.

The respondents were asked to rate legal framework for natural products as a constraint to the development of the baobab value chain. Research results indicate that 75% of the respondents strongly agree, 21% agree and 4% were not sure that the legal framework for natural products is a bottleneck to the development of the baobab value chain. This suggests that the policy framework for natural products can restrict respondents from actively participating in the processing and marketing of baobab products. This is confirmed by Antypas et al (2002) and Laird et al (2011) who contend that NTFPs regulatory frameworks are subjected to complex measures which are often managed by competing organisations. Existing laws are often

poorly implemented due to lack of government resources and capacity (Tomich, 1996) as cited in Kozanayi et al (2012). Therefore the legal framework for natural products has potential to limit respondents' involvement in activities beyond baobab fruit collection.

Respondents were asked to express their views regarding the extent to which they considered lack of bargaining power as a constraint to the baobab development of an effective baobab value chain. Results of the research indicate that 85% of the respondents strongly agreed and 15% agreed that lack of bargaining power poses a major constraint in their baobab production enterprise. This suggests that the baobab collectors have no voice in the setting of prices for their baobab produce. Therefore the buyer sets the price. The bargaining power of farmers who sell natural produce in their communities depends on the number of traders, the supply and degree of perishability and market information available to farmers (Ahenkam and Boon, 2011). Results of the FGDs indicate that although the baobab collectors have organised themselves into producer groups, the groups are not strong enough to negotiate prices on behalf of the collectors. In addition, the collectors previously did not have substantive markets for baobab produce; therefore they viewed their business with KAITE (Pvt) Ltd as a stepping stone for participating in the baobab value chain. The collectors are convinced that the producer groups will be vibrant in the future if they are capacitated to actively participate in value chains.

The respondents were asked to express their perceptions on the extent to which information gaps were a constraint to the development of an effective baobab value chain. The results of the research showed that 21% of the respondents strongly agreed and 79% agreed that information gaps were a constraint to their baobab production and marketing enterprise. This could suggest that information is not readily available to every actor in the value chain; some

possess information while others have very little information about the baobab value chain. FGDs also confirmed that information gaps were a hindrance to the development of an effective baobab value chain. Respondents cited lack of knowledge of how KAITE (Pvt) Ltd arrived at the US$0.20 per kg of baobab pulp. Although the respondents had information on other actors involved in the baobab value chain and the processes involved in the production of baobab powder and baobab oil, they, nevertheless lacked knowledgeable about the prices of the products on both the local and export markets. It emerged during the interviews and FGDs that KAITE (Pvt) Ltd determined the price of baobab pulp. This confirms finding by Ahenkan and Boon (2011) that lack of market information and difficulty in getting contact with final consumers are some of the major challenges facing the NTFPs value chain.

4.5 CHALLENGES FACED BY BAOBAB COLLECTORS

The respondents were asked to identify challenges they face when harvesting the baobab fruit. Answers from respondents during interviews and FGDs included travelling long distances early morning to collect baobab fruit, competing with animals (especially baboons and monkeys) for the fruit, transportation of the fruit from the wild to the homestead, and being unable to harvest baobab fruit from trees in fields where crops are grown.

When respondents were asked to list challenges encountered during baobab processing, they mentioned that they were no longer processing baobab as all processing activities effective the 2013/14 season, will be centrally performed by KAITE (Pvt) Ltd at their processing centres at Nyanyadzi Business Centre and in Harare. Previously baobab processing was done manually using traditional tools for cracking the fruit and removing baobab pulp from baobab pod.

A major challenge highlighted by baobab collectors during marketing of their produce was the perceived low price paid by KAITE (Pvt) Ltd for their baobab pulp. Ndoye (1998) recommends that the process of price setting for NTFPs between the NTFPs farmer (the seller) and the trader (the buyer) involves bargaining to reach an equilibrium price somewhere between the lowest price the seller is willing to accept and the highest price the buyer is willing to pay. The collectors lack information on prices of baobab products on the local and export markets. The KAITE (Pvt) Ltd CEO believes that the respondents were failing to understand that for every business transaction, there are costs involved and those costs have to be taken into consideration in order to reach the price or profit for a product.

4.6 RECOMMENDATIONS TO OVERCOMING CONSTRAINTS IN THE BAOBAB VALUE CHAIN

The respondents' recommendations to overcoming the lack of access to financial services were that the Ministry of Small and Medium Enterprises provide loans to the baobab collectors to enable them to scale-up their operations. It emerged from the FGDs that the collectors are ambitious to establish industry for processing baobab into a wide range of products for both the local and export markets. Some of the respondents however, were quick to realise that the option can only be possible if the collectors have access to grants from donors or loans from financial institutions. Another suggestion from the respondents was that since the baobab collectors are resident in rural areas and do not have title deeds for their small pieces of land, financial institutions could avail loans without asking for collateral security from them. The Utsanzi and SFA directors and the KAITE (Pvt) CEO strongly agreed that access to financial services was a bottleneck in their baobab production

enterprises. They all mentioned that it was costly to engage in market and product development with very limited resources. Since access to financial services was a constraint in their operations, the companies could not develop as many products as they would have wanted.

Respondents' recommendations to overcoming mistrust among value chain actors involved transparency and trust and creating relevant forums for discussion of issues relating to the commercialisation of baobab. The KAITE (Pvt) Ltd CEO and the SFA and Utsanzi directors view cooperation and greater collaboration among value chain actors as measures to overcome mistrust among key actors in the value chain. KIT & IIRR (2008) contend there are two basic types of strategies for improved trading relations. They include creating stronger chain relations: create well-organised business relations between the various actors in the value chain; and stronger market institutions: establish standards, regulations, policies and services to coordinate and support trading activities.

Respondents' recommendations to overcoming limited value addition included acquisition of appropriate machines which would enable the respondents to apply mechanical processes during baobab fruit processing (if funds are availed to them) and the respondents being capacitated to develop and market products made from baobab.

Primary producers usually lack bargaining power and in most cases are price-takers. Recommendations from the respondents on overcoming lack of bargaining power included forming a baobab producers association that would act on behalf of the baobab collectors. The respondents mentioned that KAITE (Pvt) Ltd was buying huge amounts of baobab pulp from them and if they wanted to force a price increase, the baobab producers association

would negotiate the price on behalf of all baobab collectors. Some of them even suggested holding their produce to force price change.

The respondents were asked to make recommendations on how to overcome information gaps in the baobab value chain. Their main recommendation was establishment of strong relations between the baobab collectors and their sole buyer, KAITE (Pvt) Ltd. The FGDs recommended the formation of a vibrant baobab producers association that would frequently disseminate information to all baobab collectors. Lack of market information is commonly recognised to be a major constraint to developing NTFP commercialisation (Neumann & Hirsch, 2000). Hellin et al (2005) as cited in De Caluwe (2011) confirmed that smallholders have little or no information on market conditions, prices and quality of goods. Besides, they are not organised collectively and have limited experience with market negotiations.

Recommendations by the KAITE (Pvt) Ltd CEO and the Utsanzi and SFA directors on overcoming bottlenecks in the baobab value chain were strengthening relations among all value chain actors, improved communication at all levels of the value chain, and effectively applying governance issues in the value chain. They highly recommended the formation of a baobab producers association that would “speak” on behalf of all the baobab collectors in Chimanimani district.

The trio was convinced that the impact of baobab commercialisation was significant as the baobab collectors were generating additional income. They also perceive baobab commercialisation to have aided in the conservation of the baobab species as people now place a lot of value on the baobab tree. The CEO and directors also encouraged introduction of baobab cultivation trials in the district in order to ensure continuity of baobab fruit supplies

in the long-run. Akinnifesi et al (2006) observed that many rural households rely on indigenous trees as sources of cash and subsistence, but until recently there has been little effort to cultivate, improve or add value to these species. To be successful, tree domestication has to be linked to commercialisation and market expansion (Tchoundjeu et al, 2007).

4.7 CHAPTER SUMMARY

The research results show that the baobab value chain in Chimanimani needs improvement, especially for the benefit of the baobab collectors. KAITE (Pvt) Ltd is the sole company buying baobab pulp from the baobab collectors, thereby making it a monopolistic business. Precisely, the company seems to be dominating in the value chain. The baobab collectors lack bargaining power and have limited capacity to engage in baobab value added activities. They also lack access to financial services and marketing information. There is need to create competition in the sector in order to overcome some of the identified constraints.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter presents the conclusions of the research on the actors that interact with the baobab collectors, the challenges/constraints inhibiting the development of the baobab value chain, and how to improve the baobab value chain. Recommendations to address key findings of the research will emanate from the conclusions reached. Specific areas for further study on the baobab value chain will then be presented based on areas needing further exploration. The chapter will also accept or refute the study proposition.

Based on the research findings, the study accepts the research proposition that it is possible to find out constraints in the baobab value chain that are inhibiting the actors, especially baobab harvesters, from realising full benefits from the commercialisation of baobab in Zimbabwe. Baobab collectors in Chimanimani, like most smallholders, face several constraints in their baobab production enterprise, the major ones being lack of bargaining power and value addition to their produce, lack of access to financial services and information gaps. There is, however, scope to improve the baobab value chain for the benefit of all actors involved.

5.2 CONCLUSIONS

The following is a presentation of the research findings and is based on the responses provided by the baobab collectors in Hotsprings and Gudyanga wards of Chimanimani district, the KAITE (Pvt) Ltd CEO and the directors of Utsanzi and SFA. The findings are a reflection of the baobab value chain in Chimanimani district.

5.2.1 Value chain actors who interact with baobab collectors and their respective roles

Findings from the research revealed that baobab collectors in Chimanimani frequently interact with KAITE (Pvt) Ltd, the sole company that buys their baobab pulp, Chimanimani RDC (the local authority for the district), Forestry Commission and EMA on environmental management issues, NGOs implementing livelihoods projects in the district and organic and fairtrade certifying bodies such as PhytoTrade Africa and Eco-Cert. The research showed that the respondents signed contracts with KAITE (Pvt) Ltd; the company will be the sole buyer of the baobab collectors produce. In order to ensure sustainable harvesting of baobab fruit, hygienic storage of the fruit and proper record keeping by the baobab collectors, the KAITE (Pvt) Ltd Extension Executive organises and conducts frequent training to the baobab collectors.

Forestry Commission and EMA provide extension services in environmental management to the baobab collectors. PhytoTrade Africa and Eco-Cert also visit the baobab collectors annually to carry out organic and fairtrade certification inspections.

5.2.2 Constraints faced by baobab collectors in the value chain

The research identified a number of constraints that hinder the development of an effective baobab value chain, especially during baobab fruit harvesting and marketing. The major constraints include lack of bargaining power and value addition, lack of access to financial services and information gaps. Research findings showed that KAITE (Pvt) Ltd set the price for the baobab collectors produce (mainly baobab pulp). According to the KAITE (Pvt) Ltd CEO, the baobab pulp price was fixed by the company after having taken into account all expenses involved (transport, packaging material and processing at the baobab processing

centre). The baobab collectors also felt that lack of value addition significantly contributed to the low price for their baobab pulp. Linked to lack of value addition is lack of access to financial services which prevents the baobab collectors from engaging in value added activities. Access to financial services will enable the baobab collectors to process baobab pulp into baobab oil and baobab powder and sell direct to private companies in the food, beverage and cosmetic industries. The baobab collectors will also make products from baobab powder and oil. This will doubtlessly generate more income for the baobab collectors and also create employment in the district. Information gaps on natural plant species commercialisation (especially on marketing and sales) are among major bottlenecks for the wild collectors. The baobab collectors lack information on prices of baobab products on the local and export markets.

5.2.3 Improving the baobab value chain

The baobab value chain has many constraints which cannot be ignored if baobab commercialisation in Chimanimani is to achieve its main objective of improving income for the baobab collectors is to be realised. The baobab collectors face several constraints during baobab fruit harvesting (travelling long distances to collect baobab fruit and transporting the fruit to their homes), and marketing baobab pulp (how the price is set and lack of information on baobab products prices on the local and export markets). The constraints, among them, lack of bargaining power, information gaps, lack of access to financial services, lack of value addition to their produce, and lack of clear government policy on commercialisation of natural plant species, are hindering the development of an effective baobab value chain.

5.3 RECOMMENDATIONS

The following are recommendations based on the responses by the baobab collectors, the KAITE (Pvt) Ltd CEO and the directors of Utsanzi and SFA.

5.3.1 Increased cooperation and greater collaboration among value chain actors

The constraints identified by the baobab collectors can be a result of lack of market literacy, development and coordination among the value chain actors. Value chain development should build linkages and enhance trust among various actors in the market chain. This can be achieved by supporting baobab collectors to associate, collaborate and coordinate with buyers of their baobab produce. In addition, all value chain actors should have access to information and market intelligence, which will enable value chain actors to satisfy product standards required by buyers.

5.3.2 Provision of credit to baobab collectors

Lack of finance to the natural products sector due to the risks involved (anticipated low loan repayment rate due to the seasonality of the fruit) has been identified as a major challenge. Baobab collectors have no collateral to secure credits from banks, which limits their access to credit in order to engage in the production of baobab products. The government should, therefore, encourage banks like Agribank to provide low interest loans to the baobab collectors.

5.3.3 Strengthening bargaining power of the baobab collectors

Understand power distribution and control among value chain actors is crucial before intervening in a value chain. This will help to assess how much influence buyers can have

over produce quantity, quality and price. In order for the baobab collectors to participate in price setting for their produce, they are encouraged to form a baobab producers group which will be their mouth piece in all issues relating to their baobab production enterprise. Having a well organised group will enable the baobab collectors to bulk their produce and reduce costs through economies of scale. It will also strengthen the baobab collectors' bargaining power with buyers of their produce.

5.3.4 Creating mutual trust among value chain actors

In order to create mutual trust among all the value chain actors, there is need to effectively organise the chain actors and create mutual understanding. All value chain actors should understand their roles and services. This will create stable and stronger trade relations among all actors in the chain.

5.3.5 Expanding the local market for natural products

The local market for natural products is small. Therefore there is need to come up with awareness creation campaigns on the nutritional and medicinal properties of baobab by the Ministry of Health and Child Care and private companies and research organisations working in the sector.

5.3.6 Clear policy on natural plants commercialisation

There is need for the Government of Zimbabwe to develop a clear policy that will guide the development, use, and management of natural products. This could be done through effective promotion of natural species in the national poverty reduction strategy.

5.4 AREAS OF FURTHER STUDY

There is scope to conduct in-depth study into how value chains of baobab in neighbouring countries such as South Africa, Botswana and Mozambique work. The countries, especially South Africa, have excelled in commercialisation of natural species. The findings will contribute to overcoming constraints in and ultimately improve the baobab value chain in Chimanimani.

There is need to explore prices of baobab products in the market chain, from the baobab collector to the final consumer in the export market with the objective to investigate how prices for different products are set. This will enable different actors to assess if their products are fairly priced.

There is also need to explore mechanisms to finance baobab collectors to enable them to boost their baobab production enterprise. This will simultaneously address the constraint of value addition which the baobab collectors feel could take them to greater heights if adequate funding in the form of loans or grants to set up baobab processing centres is availed to them.

5.5 CHAPTER SUMMARY

The chapter presented conclusions gathered from the research on baobab value chain in Chimanimani district. It also made recommendations on major findings from the research. Areas of further study on the baobab value chain were identified and presented.

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5.7 APPENDICES

5.7.1 Appendix 1: Administrative introductory letter

THE UNIVERSITY OF ZIMBABWE

Graduate School of Management

TO WHOM IT MAY CONCERN

I am an MBA student undertaking a research project **entitled "Enhancing underutilised plant species value chains to improve rural economies: A case of baobab in Chimanimani district."**

The researcher will administer three research instruments – two to the baobab harvesters in Chimanimani district and one to processors/buyers of baobab produce. The semi-structured interviewer-administered questionnaire will be administered through personal interviews and will take 40 minutes to complete. The second research instrument, a focus group discussion guide will be administered to baobab harvesters. The third research instrument, key informant interviews guide will be administered to processors/buyers of baobab produce from the Chimanimani baobab harvesters.

Please note that the data collected will be used purely for academic purposes only and will be kept confidential. For enquiries or clarification, please contact the following persons:

Mr E Makoni(Research supervisor) on mobile number 071 2 576 546

E-mail: emakoni@commerce.uz.ac.zw

Mrs Bridget Matambo (Research student) on mobile number 077 8 484 805

E-mail: bridget.matambo63@gmail.com

Thank you for your cooperation.

Regards

Bridget Matambo

5.7.2 <u>Appendix 2:</u> Questionnaire for baobab collectors in Chimanimani district

Instructions for completing the questionnaire **Questionnaire Number** ☐

1. ***Indicate responses by ticking and numbering in the appropriate boxes and writing in the appropriate spaces provided.***

2. ***Each questionnaire will take approximately 35 minutes to complete.***

Name of Enumerator	Signature	Date Interview Completed

Ward Name ☐

SECTION A: Smallholder demographic and socio-economic characteristics

A1 Sex of respondent: Male ☐ Female ☐

A2. Age of respondent:

Less than 20 years ☐ 20 to less than 50 years ☐

50 to less than 65 years ☐ 65 years and above ☐

A3. Marital status

Married ☐ Widowed ☐ Divorced ☐ Single ☐

A4. Level of education:

No formal education ☐ Primary school ☐ Secondary school ☐

Diploma ☐ University ☐

Other (Specify) _____

A5: Number of years of baobab collection by collector

Less than 1 year ☐ 1 to less than 2 years ☐

2 years to less than 5 years ☐ 5 years and above ☐

A6: In the 2013/14 season, how much baobab was sold by the collector?

Less than 1 tonne ☐ 1 to less than 2 tonnes ☐

2 to less than 3 tonnes ☐ 3 to less than 4 tonnes ☐

4 to less than 5 tonnes 5 tonnes and above ☐

A7: In the 2012/13 season, how much baobab was sold by the collector?

Less than 1 tonne ☐ 1 to less than 2 tonnes ☐

2 to less than 3 tonnes ☐ 3 to less than 4 tonnes ☐

4 to less than 5 tonnes 5 tonnes and above ☐

A8: In the 2011/12 season, how much baobab was sold by the collector?

Less than 1 tonne ☐ 1 to less than 2 tonnes ☐

2 to less than 3 tonnes ☐ 3 to less than 4 tonnes ☐

4 to less than 5 tonnes 5 tonnes and above ☐

A9. In the 2013/14 season, how much sales did the collector make?

Less than $100 ☐ $100 to less than $150 ☐

$150 to less than $200 ☐ $200 to less than $250 ☐

$250 and above ☐

A10. In the 2012/13 season, how much sales did the collector make?

Less than $100 ☐ $100 to less than $150 ☐

$150 to less than $200 ☐ $200 to less than $250 ☐

$250 and above ☐

A11. In the 2011/12 season, how much sales did the collector make?

Less than $100 ☐ $100 to less than $150 ☐

$150 to less than $200 ☐ $200 to less than $250 ☐

$250 and above ☐

A12. How much income does the collector get from other income generating projects during the year? List the interventions and approximate amounts in the space provided below.

_____

_____

_____

A13. Do you belong to a wild collectors group? Yes ☐ No ☐

If yes, state the number of years the collector has been a member.

Less than 1 year ☐ 1 year to less than 2 years ☐

2 years to less than 5 years ☐ 5 years and above ☐

A14: What positive impact has baobab sales had on the collector? Tick in the appropriate boxes.

a. Increased income ☐ b. Increased knowledge through training(s) ☐

c. Increased food diversity ☐ d. Access to markets ☐

e. Other (specify)

_____
_____
_____
_____
_____

SECTION B: Baobab value chain actors who interact with the baobab collectors in Chimanimani district

B1. To whom do you sell your baobab produce?

a. Middlemen ☐ b. Hawker ☐

c. Local community ☐ d. Processor ☐

e. Wholesaler ☐ f. Supermarkets ☐

g. Retailer ☐ h. Other (specify) _____

B2. If the answer to B1 is not a, b or c provide names of companies/supermarkets that buy your produce.

_____
_____
_____
_____

B3. Indicate the percentage of produce sold to each of the buyers per season

a. Middlemen ☐ b. Hawker ☐

b. Local community ☐ d. Processor ☐

e. Wholesaler ☐ f. Supermarket ☐

g. Retailer ☐ h. Other (specify) _____

B4. Are there contractual arrangements with any of the organisations?

Yes ☐ No ☐

If the answer to B4 is yes, what are the arrangements?

_____
_____
_____
_____

B5. Has the collector received any extension services/trainings on baobab harvesting, processing and storage?

Yes ☐ No ☐

B6. If the answer to B5 is yes, state the organisation that trained the collector, what the training was on and number of trainings.

_____
_____
_____

B7. Are the buyers particular about the quality of the collector's produce?

Yes ☐ **No** ☐

SECTION C: Constraints inhibiting development of baobab value chain

C1: What production and marketing constraints does the collector encounter in their baobab business? Tick the most appropriate answer in the box on the score given as follows:

1=Strongly agree; 2=Agree; 3=Not sure; 4=Disagree; 5=Strongly disagree

	Constraint	**1**	**2**	**3**	**4**	**5**
1	Particularities of baobab					
2	Lack of access to financial services					
3	Investment climate in the country					
4	Legal framework for natural products					
5	Organic certification					
6	Mistrust among value chain actors					
7	Limited value addition					
8	Lack of bargaining power					
9	Limited quantities bought by buyers					
10	Inconsistency in produce supply					
11	Information gaps					

C2. What challenges do you face when harvesting the baobab fruit?

_____
_____
_____
_____

C3: What challenges do you encounter during baobab processing?

_____
_____
_____
_____

C4: What challenges do you encounter when marketing your produce?

_____
_____
_____
_____

C5: Do you have knowledge of the local and export prices for produce bought from you by individuals/firms? Yes ☐ No ☐

C6: If the answer to C5 is yes, what are the local prices for baobab powder?

_____
_____
_____

C7: Do you carry out any value addition activities? Yes ☐ No ☐

C8: If the answer to C7 is yes, what are the processes?

_____
_____
_____

C9: Who determines the selling prices of the collector's produce?

Collector ☐ Buyer ☐ Baobab Association/Group ☐

Other (Specify) _____

C10: What are your recommendations to overcoming the following challenges?

a. Lack of access to financial services eg loans

_____
_____
_____

b. Mistrust among value chain actors

_____
_____
_____

c. Limited value addition

_____
_____
_____

d. Lack of bargaining power

_____
_____
_____

e. Information gaps

_____
_____
_____

5.7.3 Appendix 3: FOCUS GROUP DISCUSSION (FGD) GUIDE FOR BAOBAB COLLECTORS IN CHIMANIMANI DISTRICT

Name of Enumerator ☐ **Questionnaire Number** ☐

Number of Males ☐ **Number of Females** ☐ **Total** ☐

Ward Name ☐

SECTION A: Participatory Market Mapping (PMP) exercise with the FGD participants

Step 1: List all the baobab value chain activities

Step 2: Identify the main actors in the activities listed in Step 1

Step 3: Map the flow of produce from the collector to the final consumer

Step 4: Map the number of actors and their respective activities in the value chain

Step 5: Map the relationships among the value chain actors

A2. List all the organisations that purchase your baobab produce.

A3. Where is the market for the produce?

A4. Do you receive any extension services from various organisations/buyers? If yes, state the organisation and type of service(s) provided.

SECTION B: Constraints inhibiting the development of an effective baobab value chain

B1. What challenges do you encounter in baobab collection?

B2. What challenges do you face in baobab processing?

B3. What challenges do you encounter with buyers of your produce?

B4. Do you have access to credit facilities for improving your baobab enterprise?

B5. How are prices for your produce set?

B6. Are you satisfied with the prices?

B7: How do you view the relationships among different value chain actors?

SECTION C: Recommendations on how to overcome constraints in the value chain and improve the value chain

C1: What are your recommendations for overcoming bottlenecks in the baobab value chain?

_____
_____
_____
_____
_____
_____
_____
_____

C2: What recommendations do you propose for improving the baobab collectors' access to high value output markets?

_____
_____
_____
_____
_____
_____
_____
_____
_____

D1: What recommendations do you propose for improving the baobab value chain?

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_____
_____
_____
_____
_____
_____
_____

5.7.4 Appendix 4: Key Informant Interview (KII) Guide for processors buying baobab produce from baobab collectors in Chimanimani district

Name of Enumerator ☐ **Questionnaire Number** ☐

Number of Males ☐ **Number of Females** ☐ **Total** ☐

SECTION A: Purchase of baobab produce

A1. How long has your organisation been doing business with the baobab harvesters in Chimanimani?

Less than one year ☐ 1 year to less than 2 years ☐

2 years to less than 5 years ☐ 5 years and above ☐

A2. What product(s) do you buy from the baobab harvesters?

Baobab fruit ☐ Baobab pulp ☐

Other (Specify) _____

A3. What price(s) do you pay for the product(s)?

_____

_____

A4. How is/are price(s) set?

_____

_____

A5 Where are markets for your organisation's baobab products?

_____

_____

SECTION B: Constraints inhibiting the development of an effective baobab value chain

B1. What challenges do you encounter with sellers of baobab products?

_____
_____
_____
_____

B2. What challenges do you face in processing baobab?

_____
_____
_____
_____

B3. How easy/difficult is it to access credit from financial institutions for added value for baobab?

_____
_____
_____

B4: How do you view the relationships among different value chain actors?

_____
_____
_____

SECTION C: Recommendations on how to overcome constraints in the value chain and improve the baobab value chain

C1: What are your recommendations for overcoming bottlenecks in the baobab value chain?

_____
_____
_____
_____
_____
_____
_____

C2: What recommendations do you propose for ensuring continuity in supply of baobab produce by small-scale producers in Chimanimani?

_____
_____
_____
_____

C3: What recommendations do you propose for improving the baobab value chain?

_____
_____
_____
_____
_____
_____
_____
_____

SECTION D: OTHER ISSUES TO DO WITH BAOBAB COMMERCIALISATION

D1: What is your assessment of the impact of baobab commercialisation on the baobab harvesters?

_____
_____
_____

D2: Do you perceive the commercialisation of baobab in Chimanimani to have aided in conservation of the baobab species?

_____
_____
_____