

African Food Tradition rEvisited by Research
FP7 n°245025

Start date of project: 01/09/2010
Duration: 45 months

Deliverable number: D 5.1.2.3

Title of deliverable: Report on Marketing and Regulatory Opportunities for Africa for Group 3 (Value Chain Analysis)

Deliverable type (Report, Prototype, Demonstration, Other): Report

Dissemination level (PU, PP, RE, CO)*: PU

Contractual date of delivery: December 2011 (month 15)

Actual date of delivery: January 2012 (month 16)

Work-package contributing to the deliverable: WP 5

Organisation name of lead contractor for this deliverable: **Natural Resources Institute (NRI)**

Authors: Ben Bennett Cheikh Ndiaye, Mady Cisse, Alé Kane, Nadège Ingrid Gouanlong, Robert Ndjouenkeu and Victor Tsapi

This document has been send to :

The coordinator by WP Leader	Date: July 2012
To the Commission by the Coordinator	Date: July 2012

* PU: Public; PP: Restricted to other programme participants (including the Commission Services); RE: Restricted to a group specified by the consortium (including the Commission Services); CO: Confidential, only for members of the consortium (including the Commission Services)

Table of Contents

1. Summary	3
1.1 Introduction	3
1.2 Product descriptions	4
1.3 Value chain descriptions	5
1.4 Marketing mix	6
1.5 SWOT Analysis	6
1.6 Market GAP analysis	7
1.7 Summary, conclusions and recommendations	8
2. Baobab (Adonsonia digitata L.)	9
2.1 Introduction	9
2.2 Baobab product description	9
2.3 Value Chain Map	11
2.4 The Marketing Mix	15
2.5 SWOT Analysis	16
2.6 GAP Analysis	19
2.7 Summary, conclusions and recommendations	20
3. Bissap (Hibiscus sabdariffa L.)	22
3.1 Introduction	22
3.2 Product description	22
3.3 Value Chain Map	24
3.4 The Marketing Mix	28
3.5 SWOT	31
3.6 GAP Analysis	32
3.7 Summary, conclusions and recommendations	32
4. Jaabi	34
4.1 Introduction	34
4.2 Product description	34
4.3 Value Chain	35
4.4 The Marketing Mix	42
4.5 SWOT	43
4.6 GAP Analysis	44
4.7 Summary, conclusions and recommendations	44
Annex 1: Abbreviations and acronyms	46
Annex 2: List of interviews conducted	47
References	48

1. Summary

1.1 Introduction

This report summarises research into the marketing, regulatory and value chains of a group of plants species used as ingredients for traditional African foods and which have potential as functional foods: Baobab (*Adonsonia Digitata* L), Bissap (*Hibiscus sabdariffa* L.) and Jaabi (*Ziziphus Mauritania* L.). It constitutes one of three summary reports that review the market for these traditional foods using value chain analysis as part of the European Union funded project the African Food Tradition Revisited by Research (AFTER).

The three products considered here are:

- Baobab, a commonly available tree whose fruit contains a pulp that is used for traditional beverages in Senegal;
- Bissap, a beverage made from an extract of *Hibiscus sabdariffa* L. in Senegal; and,
- Jaabi, a flour prepared from the ground and dried fruit pulp of *Ziziphus mauritania* L. in Cameroon.

The purpose of this report is to understand all aspects of the value chains for these food products and to use this information formulate marketing plans with a view to guiding efforts to re-engineer African foods. The work is complementary to the market access and regulation reports which are presented separately.

The method used to undertake this research was a mixture of literature review and key informant interviews. A list of interviewees is provided at Annex 2 and literature consulted can be found at the end of this report. The field research was conducted during the period October to December 2011. The key elements of the method and initial value chain maps, elements of the marketing mix and market GAP analysis were developed by the teams collectively at a value chain workshop held in Dakar, Senegal from 28th to 30th September 2011. Key methodological tools included:

- Value chain analysis: considers the actors and governance of all elements of the product from primary production to consumption;
- Marketing Mix: describes the key elements necessary to bring the product to the market including, how the product is defined, its price, how it should be promoted, the place that consumers would like to buy it and how the people who consumer the product are defined;

Report on Marketing and Regulatory Opportunities for Africa for Group 3

- Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis: defines the product in relation to its potential competitors; and,
- Gap Analysis: reviews the range of different products and markets available and assesses what might be needed to bridge the gap between where the current market for the product is and where it could be after re-engineering.

The scope of the analysis included all aspects from production to consumption.

Some challenges were encountered during the research. Lack of resources to undertake field-work limited the scope of some of the research.

The report consists of four sections covering the value chains for each of the three AFTER functional food products in detail and, in this first Chapter, summarizing the key findings for each product and this group of products as a whole. For each individual AFTER product in this group the product is described, a value chain map outlined, the marketing mix reviewed (product, price, place, promotion and people), (SWOT) analysis completed, and market gap analysis conducted. The findings are summarized here and some conclusions and recommendations drawn.

One aim of value chain analysis is to find key success factors that will drive the market development for AFTER products. These key success factors include identifying potential bottle-necks that might prevent a product from reaching a market or opportunities to upgrade a product (e.g. improve its quality, process it, package it, promote it to a new and more value market and/or reduce its unit cost of production for example).

Individual reports were created by teams in each country as follows: Baobab and Bissap: Cheikh Ndiaye, Mady Cissé, Malick Mbengue, and, Alé Kane; Jaabi: Nadège Ingrid Gouanlong, Robert Ndjouenkeu and Victor Tsapi. This summary was compiled by Ben Bennett.

1.2 Product descriptions

In order to establish which market norms apply to a product it is necessary to know what forms that product takes in the market. Different types of product enter different market chains. Different end products compete in different market segments. For these pre and post engineered African food products the first step is to clearly define what the products are and which market segments they currently occupy.

Baobab is a tree which produces seeds that contain a nutritious pulp high in Vitamin C. The pulp is sold as a food or converted into a range of beverage ingredients for local and international markets.

Report on Marketing and Regulatory Opportunities for Africa for Group 3

Bissap is a beverage made from extracts of Hibiscus sabdariffa L calyx. It is made into a range of syrups and juices that are used as the basis for a number of different drinks in Senegal.

Jaabi is a wild fruit used in Cameroon as the basis of a steamed cake called Yaabande. Yaabande is traditionally used as a seasonal treat, particularly as an afternoon snack. It is not yet commercialized in any way.

The three functional food based products considered here are, in various forms, produced by small enterprises in a ready-to-eat form and are the basis for traditional dishes. Hibiscus (Bissap) and Baobab are now recognized in international trade and are the basis for a growing number of processed natural products such as snack, breakfast bars and beverages.

1.3 Value chain descriptions

Actors and processes were described for all the products and typologies developed. Using these definitions, value chain maps were created to show the relationships between actors and processes. On these maps additional information was overlaid including: the gender differentiation of each value chain, the prices of products at each stage in the chain and the relative share of each actor in the final on-shelf product price.

Key findings from the development of value chain maps are:

Baobab

Baobab is currently sold in three main forms: as pulp, as a fruit juice or fruit juice ingredient or as syrup. A limited amount of export of all these products occurs.

The price of raw material is rather low. Current industrial buyers do not consider supply sustainability of this wild harvested resource or issues of traceability in their supply chains.

Quality and shelf-life is considered a key success factor.

Bissap

A number of formal and semi-formal bissap value chains already exist competing in Senegal's dynamic beverage sector. A wide range of different chain actors exist producing bissap beverages on both small and large scale.

The potential for bissap as a functional food is under-developed in all its markets. The existing value chains focus on colour and flavour qualities.

Quality, price and availability of raw materials make consistent production of bissap at any scale challenging.

Report on Marketing and Regulatory Opportunities for Africa for Group 3

Jaabi

Jaabi production is limited geographically to Northern Cameroon, seasonally to the fruiting period of *Ziziphus mauritania*, and economically to informal, small-scale production. Yaabande cakes are an artisanal business largely dominated by women.

Seasonality means that price variation for Jaabi is substantial but the ability of producers to pass this onto consumers is rather limited by the short shelf-life of the raw materials and finished product.

The functional qualities of Jaabi are largely unknown among both producers and consumers.

1.4 Marketing mix

Review of the key elements that make up the marketing mix (e.g. ‘product’, ‘price’, ‘place’ of sale, ‘promotion of the product and the ‘people’ involved) revealed the following.

Table 1: The marketing mix for reengineered AFTER products – key findings

	Product	Price	Place	Promotion	People
Baobab	<ul style="list-style-type: none"> • Pulp • Juice • Syrup 	Pulp – unknown Juice – CFA 1000 /l Syrup – CFA 2000/l (retail)	Pulp – street markets Juice and syrup – shops, supermarkets, restaurants, hotels (Nb: strong informal beverage market)	Various media	Pulp – market unknown Juice – youth and children Syrup – not widely known
Bissap	<ul style="list-style-type: none"> • Calyx (different varieties) • Juice • Syrup 	Producer price varies from CFA 250 to 625/kg seasonally	Ubiquitous. Particularly popular street vended beverage	Various mass media	Children and youth market under-developed
Jaabi	<ul style="list-style-type: none"> • Dried Jaabi flour • Yaabande cakes 	CFA 100 for 4 pieces	Shops, bakers, restaurants and supermarkets under-exploited	Various mass media	Urban consumers and Cameroonian diaspora

1.5 SWOT Analysis

For each existing and re-engineered product a Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis was conducted. This highlighted the

Report on Marketing and Regulatory Opportunities for Africa for Group 3

range of internal values and external issues that need to be addressed during re-engineering. Highlights are shown in table 2.

Table 2: SWOT Analysis highlights

	Strengths	Weaknesses	Opportunities	Threats
Baobab				
- pulp	Unique flavour	No conservation	Under-utilised ingredient for other products	Quality and supply uncertain
- juice	More vitamin C than competitors	Poor product quality	Blend with other ingredients to give function	Many competitors (crowded market space)
- syrup	'Natural'	Variable colour and active ingredients	Blend with other ingredients to give function	Many competitors (crowded market space)
Bissap				
- Calyx	Grows well in Senegal	Quality declines with storage	Local market not fully served yet	Food safety and quality not assured
- Juice	Manufacturing relatively simple	Poor shelf-life	Local market not fully served yet and looking for improved products	Many competitors (crowded market space)
- Syrup	Stores better than juices	Functional properties destroyed in manufacture	Local market not fully served yet	Many competitors (crowded market space)
Jaabi (Yaabande)	Considered good value for money by consumers	Only available in the afternoon (because it is made in the morning)	Could be commercialized by small bakeries	Limited production season

1.6 Market GAP analysis

GAP analysis considered the potential market space that the re-engineered AFTER product might occupy.

For Baobab several opportunities were identified. Instant baobab powders do not exist yet. Baobab has potential as a functional ingredient in local and international foods. The fast expanding local informal beverage market (e.g. rickshaw sellers) looks promising.

Bissap is already a well-known and improved product in Senegal. Like Baobab, a potential market gap in the growing domestic beverage market for better quality and standardized products exists.

The Jaabi market gap would seem to be for an instant food ingredient which would be of particular interest to the small scale bakery sector.

1.7 Summary, conclusions and recommendations

Summary

Value chain analysis was conducted for three plant products with functional properties from Africa: Baobab and Bissap from Senegal and Jaabi from Cameroon. This has revealed the actors and processes involved in current product and have pointed towards potential key success factors important for re-engineering.

Conclusions

For Baobab and Bissap the development of a safe and standardized beverage ingredient with clearly identified functional properties looks promising. Growth in the domestic beverage market built on the young and youth markets should be a focus of effort.

Jaabi currently has a narrow market space with low quality but high traditional value.

Recommendation

Wider distribution of an upgraded Jaabi product, particularly penetrating the bakery goods market, could greatly promote domestic demand.

2. Baobab (*Adonsonia digitata* L.)

2.1 Introduction

This report section concerns the value chain for baobab in Senegal. It was completed by Cheikh Ndiaye, Mady Cisse and Malick Mbengue between 20/10/2011 and 25/10/2011.

The purpose of this report is to scope out and reveal the value chain for baobab products. This value chain included key actors and processes. In addition, the analysis uses the value chain information to build SWOT and GAP analyses for existing and re-engineered AFTER products. The work builds upon the AFTER survey [D1.1.2.2 and D1.1.2.3] and the literature search (Cisse & Ndiaye, 2010). It should also be read in conjunction with the regulatory and market access report.

The approach was done according to value chain workshop at Dakar on 27-29th September 2011 with follow-up interviews with key value chain actors (Annex 2). Its scope included all aspects of the value chain. Moreover, the processing, storage and the artisanal character of the juice and pulp production have been investigated.

Problems included the lack of knowledge of who the baobab trees belong to, the volume trade of baobab juice and baobab syrup and the informal distribution of the baobab products are encountered. Furthermore, many processors refused to give information on their production line. There was many problem related to the standards and HACCP condition to the artisanal level.

The report is laid out as follows: introduction, product description, value chain map, the marketing mix, SWOT and market Gap analysis. A summary and conclusions can be found in sub-section 7 along with some recommendations relevant to AFTER project implementation.

2.2 Baobab product description

Baobab pulp is a semi-processed food extracted from the seeds of *Adonsonia digitata*. The product is wild harvested from common access tree resources. During the preparation, the pulp is ground and sieved to produce a powder, and the powder is finally kept in convenient containers. Baobab fruit pulp is a natural dried fruit pulp high in fibre and vitamin C. The pulp is used to develop other food by products, such as beverages.

In the market, the baobab pulp is sold into plastic sachets to avoid water rehydration. It begins to be sold by supermarkets using other specific packaging for many reasons added value. The baobab pulp is used specifically in some way by specific packaging material imposed by the export market.

Report on Marketing and Regulatory Opportunities for Africa for Group 3

Because of poor promotion and high price for low income consumers, the baobab pulp commerce is not well developed in the local market.

The baobab juice is made from baobab fruit or baobab pulp in some cases (in semi industrial level). The local market is well developed for baobab juice. In the cars' station, the streets, the supermarkets, the baobab juice is well commercialized. In the restaurants also, the baobab drink is mostly used as soft drinks for many tourists.

The baobab syrup is more commercialized to the drinks abroad because the shelf life is longer. According the producers (Annex 2), the market of syrup for exportation is developing.

In the supermarkets, it is also sold in very nice plastic or glass bottles using sometimes coded design for labelling. The lack of the syrup in street market and market places is due to low demand for the specific related clients.

Availability of baobab powder as a food ingredient that is accepted as safe to use in the United States of America and European Union has, in recent years, led to a great increase in products utilization. The majority of this material is currently either being sources from Senegal or from Malawi.

Figure 1: Examples of baobab powder based product

		
Syrup	Powder	Nectar
Source:		
http://www.zenaexoticfruits.com/	www.baomix.com	www.esteval.net

2.3 Value Chain Map

2.3.1 Actors

The chain actors are in baobab pulp:

- **Fruit baobab producers**, sometimes they can act as the fruit pod harvesters (retailers sometimes) before breaking them and used as raw material;
- **The processors of baobab fruit pulp, the retailers** (for the export market) and **the consumers**. The processors in the chain are grouped into associations or small or medium enterprises. In this cases, they can get some funds from government and non-government organizations. After getting these funds, they can improve the quality and the packaging but doing some training in the accredited institutes of food technologies (ITA for example).

The chain actors for baobab fruit juice are wide:

- The **household producers** supplying streets, garages and shops;
- The **retailers** could be the processors directly or sometimes linked to a network well organized;
- The **small and medium enterprises** are more organized by supplying, the supermarkets, big restaurants and hotels. There are some informal services dealing with the retailing to restaurants, supermarkets, mini-markets and hotels.

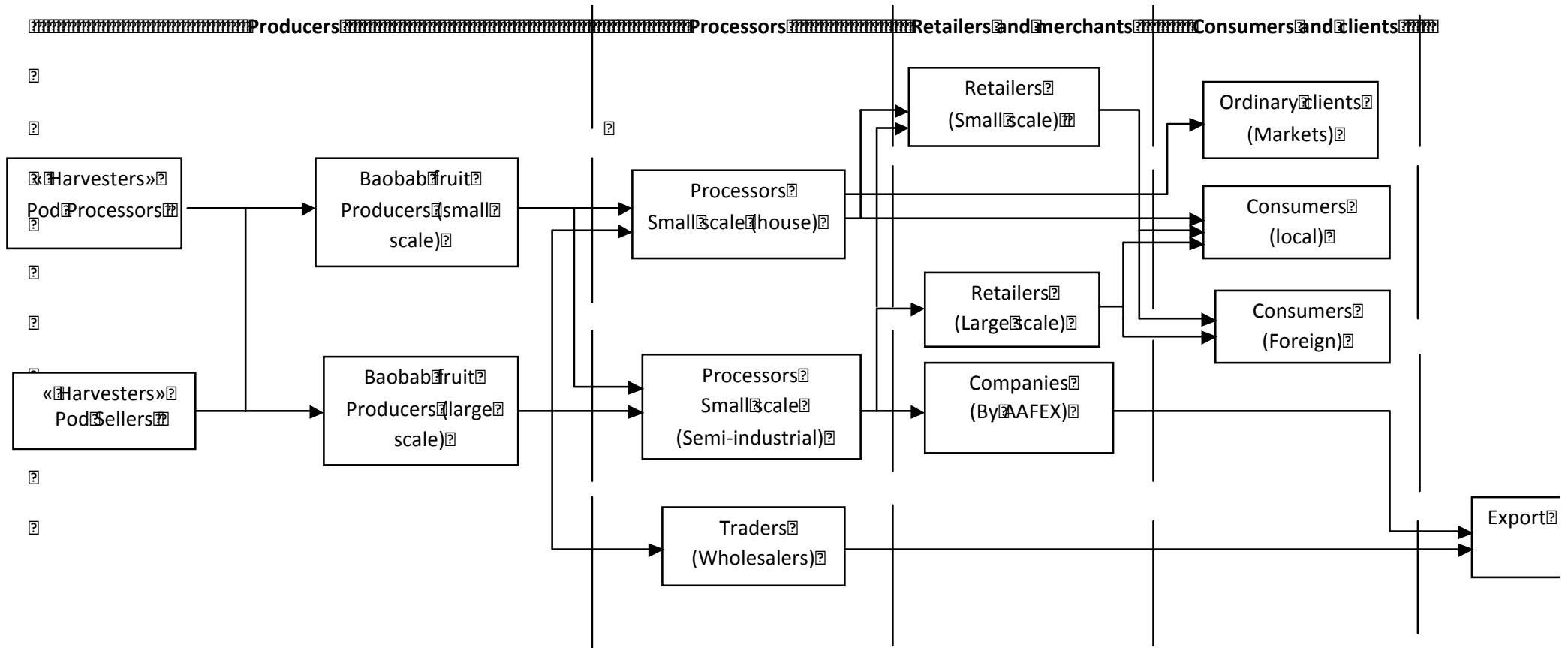
The baobab syrup actors are:

- Producers in small and medium enterprises because of some specific equipment needed (pasteurization or sterilization materials).
- For the export markets, usually a sheet paper accompanied export baobab syrup before interring to the ordering countries.

The value chain map is represented in figure 2.

Report on Marketing and Regulatory Opportunities for Africa for Group 3

Figure 2: Baobab value chain map



2.3.2 Processing

The value chain in words is described as follow:

- The fruit pod's sellers or processors are well connected to the baobab fruit producers (small scale or large scale). The fruit pod's processors could be at the same time producers. After this primary stage, the product can be easily moved to processors and traders. Some retailers supply different local markets directly. In this case, they are often the producers.
- The baobab producers can be also processors in this case they have to connect with retailers and companies for exportation. If not, the baobab fruit producers are working with the processors (large scale or small scale) or they can also provide directly the products to retailers for exportation (Italian and Spanish processors).
- When the processors finished developing their products, retailers in large scale or small scale bring products to the local consumers, foreign consumers (hotels and big restaurants) or to the ordinary clients (markets).
- The processors at enterprise levels (FWS, ESTEVAL, etc.) work with organizations such AAFEX, ASEPEX, promoting the export of products. They can also work with the retailers to facilitate the transaction to the exporting countries after supplying the local markets.
- A specific processors group is mostly women working on baobab products. They produce juice in small plastic sachets for low income consumers.

The problems are usually encountered during:

- The pod harvesting because of the height of the baobab trees.
- The break of the baobab's pod is done by using traditional ways such as the use of wall, pestles and mortars.
- The extraction of baobab pulp (traditional way mostly using pestles and mortars before sieving with different meshes).
- The filtration process, which take time because of the traditional way.
- The filling bottles, is sometime a problem because time consuming and the small plastic sachets use for the low-income consumers.
- The packaging and storage conditions.
- The informal service involved for the products of baobab.
- The lack of HACCP system to downplay the hygiene problem that can occur.

2.3.3 Services

The support services in the case of baobab by products production are specially grouped in one international association AAFEX. The retailers are supporting services, which allow hotels and big restaurants to be supplied. Also, many informal services provide facilitations to markets and supermarkets from receiving baobab products.

2.3.4 Summary of opportunities, bottle-necks, problems and key success factors from value chain analysis

Report on Marketing and Regulatory Opportunities for Africa for Group 3

The baobab fruit price is not high (CFA 350/kg) because it's from natural trees. The break of the baobab pod by harvesters is mostly done by artisanal ways. After receiving the baobab fruit by producers from harvesters, the processors can get raw material in good quality. The end price for processors depends usually from the distance and the period of production. The processors near the production zone can get price around CFA 400 to 500 /kg.

After processing, the price increases. It depends on the kind of baobab by-product. Mostly, the syrup (CFA 2000 /Litre) cost higher than juice (CFA 1000-1300 /Litre). This is normal because the time and energy consuming are higher in syrup processing. The baobab pulp (CFA 1000-1500 /kg) is a little more expensive compared to the juice. This difference can be explained by the fact that the pulp uses fewer ingredients during the processing.

The big proportion of the market is for the traders and retailers because they deal with end products. The companies also represent neglected part of the market but have export potential. However, the processors also a large part of the chain because of the products developed. They are represented by enterprises' owners, economic Interest groups (mostly directed by women).

The harvesters and the producers represent the big part for the raw material supply. They work closely for high quality directed by larger enterprises for baobab fruit processing. The main reason is to obtain good quality baobab fruit with high quality attributes in the end product.

In the market, the normal qualities/grades depend on consumers. For example for the street market, the baobab products are well presented with no specific information related to the processing and the nutrients' quality. When this market is transposed to the supermarkets, big restaurants and hotels the qualities/grades change. In these markets, the related information on nutrients' quality and the processing technologies (list of ingredients, storage temperature) are most mentioned to convince the consumers for products safety (in the case of juice or syrup).

For the baobab pulp, the white colour and the taste are important for consumers as well as the product safety.

By gender, the value chain differentiated because of the specific tasks. The baobab fruits' pods are usually harvested by men and not women. This is specially caused by the hard working conditions. Also, processing by producers is represented by men for the same reasons.

The conclusion we can draw from the value chain about upgrading/re-engineering opportunities are following:

- The harvesters and producers should be organized and trained for new packaging and storage condition to come up with high quality raw material ;

Report on Marketing and Regulatory Opportunities for Africa for Group 3

- The processing conditions as well as the technologies used must be upgrading from artisanal level to semi or industrialized level for more competitive products;
- More marketing services must closely work with the different products to increase consumers interest on baobab products;
- The market opportunities must be drawn up in the chain and the baobab products must be compared in different level processing to fall less in the range of well represented market products.

2.4 The Marketing Mix

2.4.1 Product

Baobab pulp

Artisanal and semi industrial producers

Baobab juice

Household, artisanal and semi industrial producers

Baobab syrup

Small & medium enterprises
Artisanal and semi industrial producers

2.4.2 Price

Baobab pulp

No price available

Baobab juice

CFA 1000 per one litre bottle or CFA 100 per plastic sachet.

Baobab syrup

CFA 2000 per one litre bottle retail.

2.4.3 Place

Baobab pulp

Shops and in street markets.

Baobab juice and syrup

Shops, supermarkets, restaurants and hotels

2.4.4 Promotion

Baobab pulp, juice and syrup

TV, advertising board and famous singers

2.4.5 People

Baobab pulp

Consumers: not so many because of lack of advertising or quality in the products.

Baobab juice

Consumers: children mostly in sachets, young adults for special events.

Baobab syrup

Consumers: products sold specially in supermarket mostly unknown for the simple consumers.

2.5 SWOT Analysis

The strengths, weaknesses, opportunities and threats (SWOT) for baobab juice, pulp and syrup are summarized in tables 3 to 5 below.

Table 3 SWOT analysis for Baobab juice

STRENGTHS	WEAKNESS
<ul style="list-style-type: none"> • Natural juice; • More rich in vitamin C than mango, orange, apple, pineapple, etc.; • Unique taste; • High calcium content. 	<ul style="list-style-type: none"> • Easy spoilage; • No standard formulation; • Need refrigeration for storage; • Vitamin C lost • Poor distribution; • Poor shelf life cloudy • Wild harvested.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • High demand; • Export possibilities; • New technology; • Blending juice with baobab. 	<ul style="list-style-type: none"> • Quality control; • Hard competition (local and foreign drinks); • Regulation; • More costs for exporting; • Supply problems.

Source: AFTER Research

Table 4: SWOT analysis for Baobab pulp

STRENGTHS	WEAKNESS
-----------	----------

Report on Marketing and Regulatory Opportunities for Africa for Group 3

<ul style="list-style-type: none"> • Natural pulp; • Richer in dietary soluble and insoluble fibres than apple, peach, banana, etc.; • Unique taste; • High calcium content. • High iron, potassium, and magnesium 	<ul style="list-style-type: none"> • No standard formulation; • Need more study for the packaging and storage; • Vitamin C lost • Poor distribution; • Non-existent marketing to consumers. • Wild harvested
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • High demand; • Export possibilities; • New technology; • Ingredients' extraction. 	<ul style="list-style-type: none"> • Quality control; • Lack of marketing; • Regulation; • More costs for exporting; • Supply problems.

Source: AFTER Research

Table 5: SWOT analysis for Baobab syrup

STRENGTHS	WEAKNESS
<ul style="list-style-type: none"> • Natural juice; • Richer in vitamin C than mango, orange, apple, pineapple, etc.; • Unique taste; • High calcium content. 	<ul style="list-style-type: none"> • No standard formulation; • Need refrigeration for storage; • Vitamin C lost • Poor distribution; • Wild harvested
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • High demand; • Export possibilities; • New technology; • Blending syrup with baobab. 	<ul style="list-style-type: none"> • Quality control; • Hard competition (local & foreign syrups); • Regulation; • More costs for exporting; • Supply problems.

Source: AFTER Research

The conclusion that can draw from these SWOTs can be resumed in this way:

For the strengths we can noticed:

- The three kind of baobab products that we present are all natural without colorant;
- They are rich in micro nutrients and also tasty;

For the weakness we can say:

- Not easy for storage except the dried baobab pulp (water activity very low);
- Vitamin C degradation;
- Poor distribution and marketing;

For the opportunities we can discern:

- High demand can be expected with new promising technologies;
- Market export can be increase with new by-products;

For the threats we can retain:

- Absence of regulation and control quality in most semi industrial enterprises;
- High cost for export market and supply problems;

Report on Marketing and Regulatory Opportunities for Africa for Group 3

- Real need to reorganize the market and the production.

The challenge for our products to be introduced easily to the different markets will be achieving a competitive price compared to the similar well represented products already existing in the market. We need to think about blending syrup with baobab for fortification reason.

2.6 GAP Analysis

The classification of the potential of all new kind of products from the market scale (1 to 6) is mentioned in table 6. Baobab fruits' by-products with a new packaging may still occupy traditional markets, street markets, mini-market, super-market, restaurants and hotels and the export market. The real gap in this chain must be obtained by new products such baobab instant pulp, baobab juice with safe and good quality after storage and baobab ice creams with well design packaging as well as syrup. Results of prior survey [D1.1.2.2 and D1.1.2.3] and the interview of actor (Annex 2) proved that a real challenge will come up by making re-engineering products. The new products are supposed to be sold in mini-market, super-markets and export markets. Unfortunately, traditional markets are informal with respect to the value chain conditions such as the storage conditions and the targeted consumers. Only re-engineering products for exportation can compete with other competing products. However, those competing baobab fruits' by-products are of interest to other categories of consumers according to their novelty.

Table 6: Gap strategy of baobab products (traditional and re-engineering process)

	Traditional products		Re-engineered products			
	Pulp	Juice	Baobab instant pulp	Baobab ice cream	Baobab juice new design	Baobab syrup new design
Traditional market	3	2	0	2	0	0
Street market (small scale)	2	1	0	1	0	0
Mini-market	5	4	0	0	0	4
Super-market	4	5	0	0	1	2
Big restaurants and hotels	6	3	0	3	2	3
Export market	1	0	0	0	0	1

Source: value chain workshop participants' views

NB: classification occurs from 1 (first) to 6 (sixth); 0 (not classified then not be sold)

Table 6 indicates that the supermarkets, export and improved street-market products show most potential for re-engineered products. The market space of baobab fruit products is little bit exploited. The GAP of baobab fruit products is mostly linked to many reasons includes:

- Lack of re-engineering;
- Lack of marketing;
- Low competitiveness;
- New actors such rickshaw sellers of baobab juices should be identified, quantified;
- The employers of these rickshaw sellers should be also identified.

The competing products in the markets space are blended juice, natural (without colouring) cloudy juice and some “drinks” powders (mostly colouring is used to enhance the colour and some specific flavouring), syrups (of bissap, tamarind, etc.), and instant powders like “Fosterclarks”¹.

Baobab fruit by-products are natural and the unique taste can be advantage for them to move easily into the market. The juice is well prized by consumers but the difficult storage conditions reduce the market. The syrup is sold usually in supermarkets if not exported. The solving of the easy fermentation of the syrup can be a good advantage to enter easy to the market space. The pulp is unknown for mostly local consumers; hence advertising and marketing are needed. The export market is developing with increasing enterprises.

2.7 Summary, conclusions and recommendations

Summary

The value chain analysis is a good tool to facilitate entering of baobab products in the market space. With the chain actors, we can identify the different participants on baobab products. The products’ descriptions give information on all steps production. The value chain map gives much more information on actors and the link between them and the products moving in the chain value. The marketing mix informs a lot about different markets for the products and the possible marketing tools that we can use to promote them.

Conclusions

The SWOT gives opportunities to help making moving the baobab products to diverse markets by highlighting ways to improve and to exploit. According to the market Gap analysis, we have found out the standards deviation we have to fill up to boost the baobab products for market accessibility.

The baobab fruit by products (juice, dried pulp and syrup) have opportunities to be well represented in the different markets place. The competitiveness can be really improved by settling value chain analysis that takes all the steps for markets’ entering. This value chain must be respect for better use. The re-engineering must be a good tool to make very competitive products with good quality.

Recommendations

The baobab fruit juice, dried pulp and syrup must be re-engineered. The increase of baobab juice and syrup shelf life is important. Actually, the main problems are related to shelf life. To improve the quality for meeting consumers demand, new technologies must be used for upgrading the quality level. For the

¹ See www.fosterclark.com

Report on Marketing and Regulatory Opportunities for Africa for Group 3

dried pulp, focus on parameters (water activity, temperature and pH) can be optimized for good quality products as well as the technologies used for. For all baobab products, the packaging also is another part to check out.

3. Bissap (*Hibiscus sabdariffa* L.)

3.1 Introduction

This section shows value chain for bissap in Senegal. It was completed by Alé Kane and Mady Cisse between 27 September and 07 November 2011.

The purpose of this report is to scope out and reveal the value chain for bissap. This value chain included key actors and processes. In addition, the analysis uses the value chain information to build SWOT and GAP analyses for existing and re-engineered AFTER products. The work builds upon the AFTER survey (Deliverable D.1.1.2.1-3) and the literature search (Deliverable D1.1.1.2). It should also be read in conjunction with the regulatory and market access report.

The approach was value chain workshop at Dakar on 27 to 29 September 2011 with follow-up interviews with key value chain actors (Annex 2). Its scope included all aspects of the value chain particularly the methods of transformation and storage, the scale of the market, the target market etc. Problems included lack of statistics data, the informal sector related to bissap products, the default of standards methods, and the dispersion of crop areas.

The report is laid out as follows: the introduction, the product description, the value chain, the marketing Mix, the SWOT and the Market Gap analysis. A summary and conclusions can be found in section 3.7 along with some recommendations relevant to AFTER project implementation.

3.2 Product description

Hibiscus sabdariffa L. is an herbaceous plant, cultivated largely in tropical and subtropical areas of both hemispheres. It belongs to the family of Malvaceae and is known by different names such as Guinea sorrel or bissap in Senegal, karkadé in North Africa, roselle or sorrel in Asia and flora of Jamaica in Central America (Cisse et al., 2009a; Cisse et al., 2009b).

In Senegal, *H. sabdariffa* was introduced in the 19th century (Kerharo & Adam, 1974) and is now grown throughout the territory; mainly in the Kaolack, Diourbel, Thies, Saint-Louis and Louga regions. In these areas, a dozen varieties are grown including 'Vimto', 'Koor', 'Thai' and 'CLT 92'.

Hibiscus sabdariffa L is used for its fibre; mainly for its calyx, which is of three types: green, red and dark red. The red calyxes with different varieties are the most used and are characterized by their concentration of anthocyanin, which can reach 1.5 g·kg⁻¹ of dry matter.

Report on Marketing and Regulatory Opportunities for Africa for Group 3

The *Hibiscus sabdariffa* is mostly sold as dried calyxes. The dry calyxes are sold in bulk in urban and rural markets by using multiple units of measure such as pots, buckets and bags. The main processing activities of the *H. sabdariffa* calyx are crushing, and the production of drink, concentrate and jam (see Figure 3). These products are sold directly to consumer through informal traders and processors.

Figure 3: Examples of traditional Hibiscus products in Senegal

		
Syrup	Jam	Drink
Source:		
Sicap Sacré Coeur 3, villa N° 8851, Senegal	www.zenaexoticfruits.com/	www.bevnet.com (Nb: US made product based on Senegal recipe)

Crushed calyx is sold in supermarkets. The drink usually made in the traditional way is packaged in plastic recycled mineral water bottles. It is usually sold fresh in the street, market, school and in restaurants. But drink, concentrate and jams made by more or less industrial transformers are sold in supermarkets, hotels and some restaurants.

Production testing of powder of bissap is made by some processors. However, the product is not yet commercially available.

Needs in calyx for the national market for domestic processing and small-scale processing amounted to 700 MT (Cisse et al. 2009). In 2010, total production in calyx was estimated to 1546 MT (ANSD, 2010).

Because of its high content of anthocyanin, production of red colorant from the calyx of bissap should be considered. Especially since the recent toxicological problems associated with the use of artificial colours are growing up. Industries in all sectors particularly in the food, pharmaceutical and cosmetic industries, are focus on natural dyes. Calyx could be a processed food ingredient or even an herbal remedy ingredient or food supplement in future. Many therapeutic effects of calyx are known.

3.3 Value Chain Map

3.3.1 Actors

The main actors are:

- **Farmers and Producers:** in the bissap production, we can mention three types of actors: farmers, small producers and large producers.
 - o **The traditional small producers :** they grow bissap alone or combined with other crops such as groundnuts and millet. Cultivated areas are less than one hectare. The production is used for domestic consumption or sold in local market.
 - o **Large producers** are often women organization. We can find in this group the new producers interested by local market transformation (very small industry) and the export market. Harvested areas scale from one to several hectares.
- **The traders:** they buy large quantities of dried bissap from the production areas and packed them in bags. They facilitate the large distribution in the local market and the export market.
- **The market seller and shops:** they are supplied by small local producers and wholesalers. In general, the products found in this market are the dried calyx of bissap.
- **Street sellers:** often women, they sell small quantities (few kilos) of dried bissap calyxes. Recently, street trading of bissap drink is well developed in Dakar. These products, cooled and packed in plastic bags, are well prized by population.
- **The wholesaler:** they are supplied by industries (e.g., local companies like Kirene², Esterval) and groups of women who produce drinks and syrups in plastic bottles.
- **The small scale transformers:** in this group of actors, we have calyx's processors for home using, small scale processors for drink, syrup and jams. This latest production is often intended to street trading and small shops.
- **The large scale transformers:** these actors are often women organized in economic interest group (GIE). They use traditional methods to produce juices and syrup.
- **The companies:** the increase of local consumption and the high export demand, make new bissap processing industries (Kirene, Esterval, FWS) growing in Senegal.

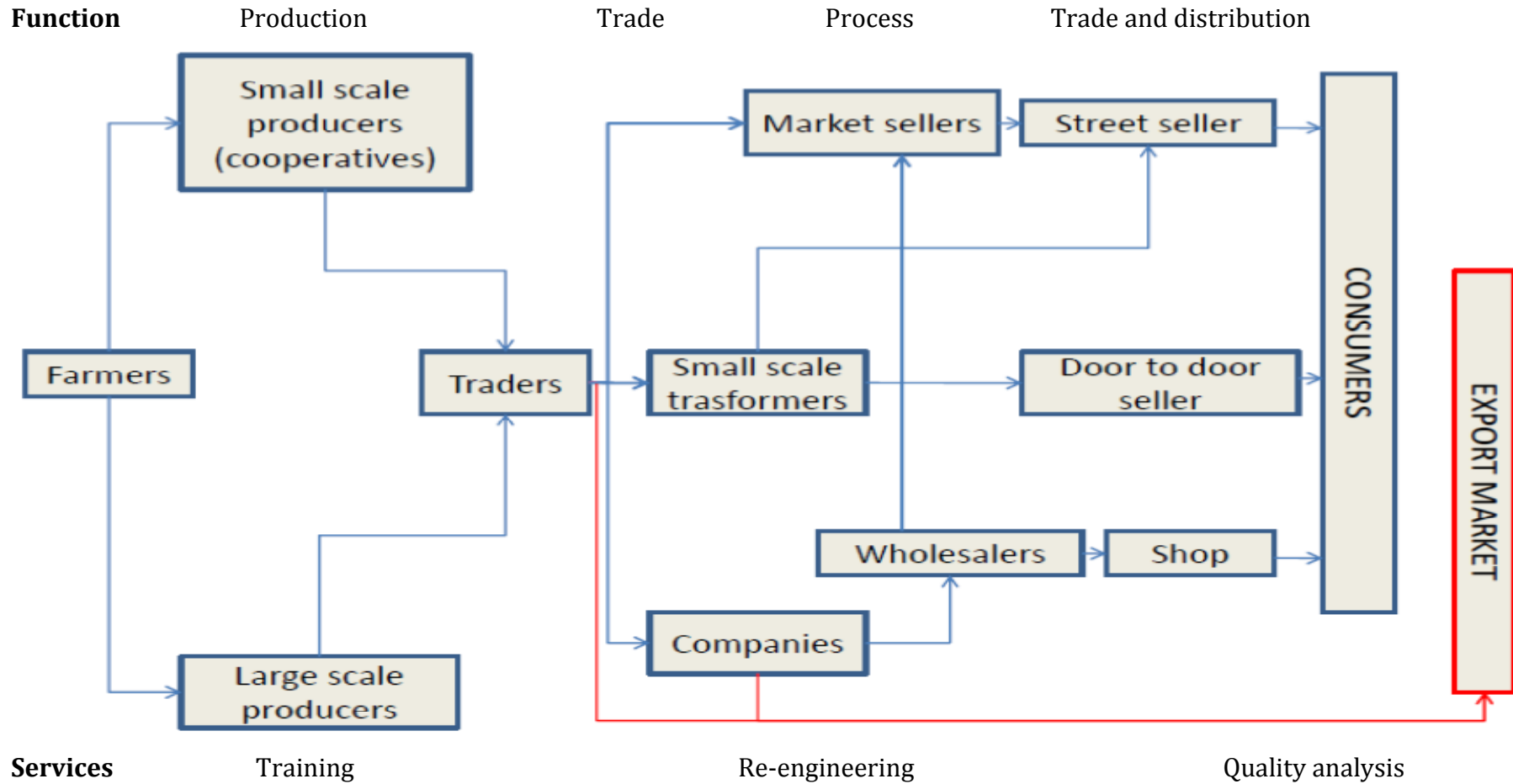
² See www.kirene.sn,

Report on Marketing and Regulatory Opportunities for Africa for Group 3

- **The consumers:** we can find the local consumers and the foreign consumers. In Senegal, bissap is used by household, the restaurants, hotels, streets, etc.
- **The export market:** Germany and USA are the main exporters of bissap calyxes. The bissap from Senegal are also exported in Italy and Sweden.

The value chain map is represented in the following flow chart.

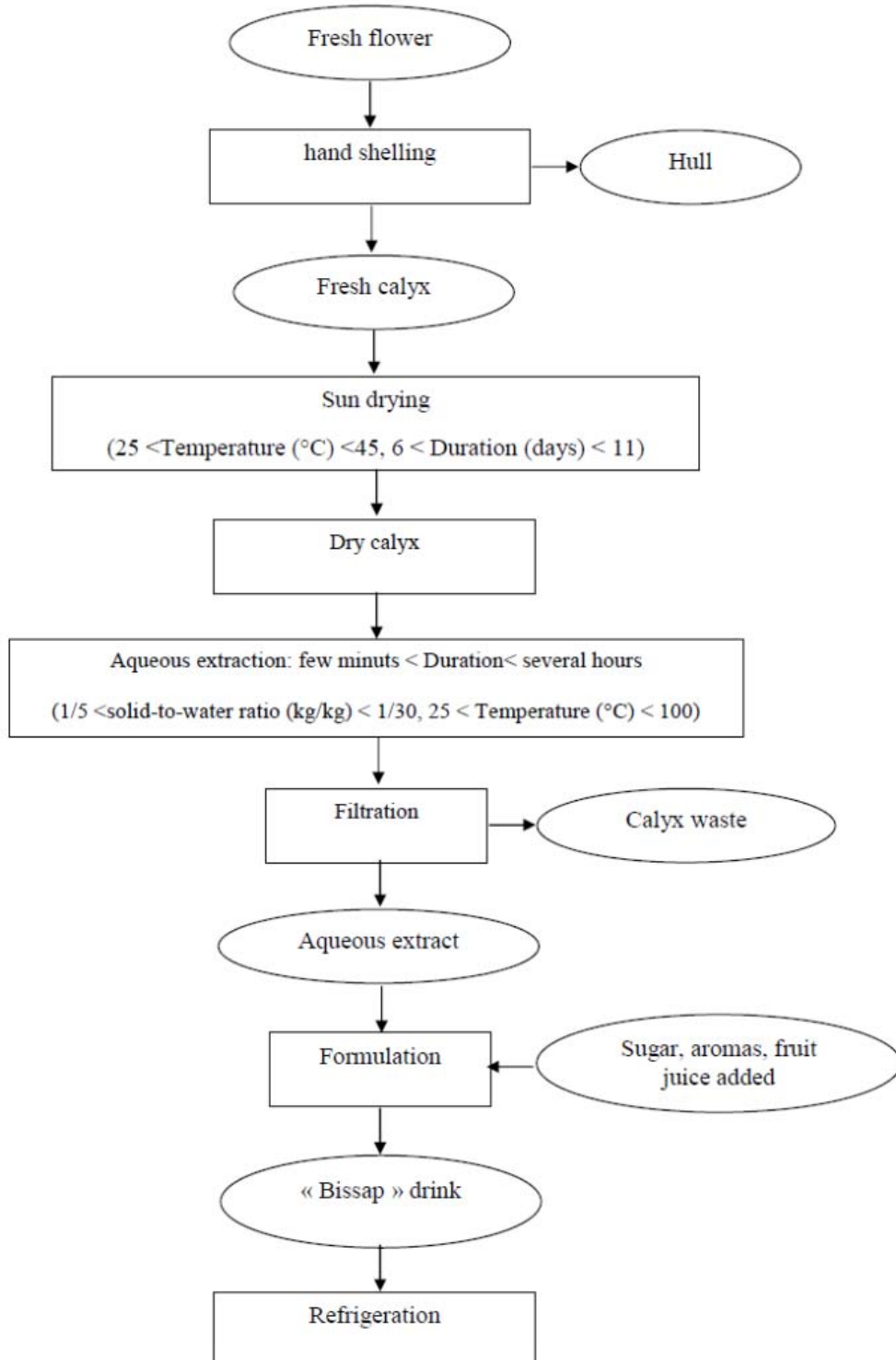
Figure 4: Hibiscus sabdariffa L. value chain map



3.3.2 Processes

The main steps for bissap calyces production are: the harvesting, the scouring, the sun drying: it reduces the moisture content of the calyx, packaging, and the transport and storage. This following schema shows the different steps of juice processing.

Figure 5: Processes to produce bissap drink



Report on Marketing and Regulatory Opportunities for Africa for Group 3

Source: unknown

3.3.3 Services

Different services can permit us to improve the value chain:

- Training on agricultural techniques, transformation and storage;
- Quality service on all chain steps;
- Research and development of bissap seeds and processing methods.

3.3.4 Summary of opportunities, bottle-necks, problems and key success factors from value chain analysis

The main problems mentioned in the all level of the value chain are:

- The sufficient supply of seeds
- Pure varieties of bissap selection
- Shelling: rudimentary tools (knives) and low hygiene.
- Quality of calyces drying methods.
- Difficult access to good quality of packaging.
- Artisanal processing of bissap drinks, syrups and jam
- Conservation of calyces and bissap drink: degradation of the colour during storage. This is caused largely by the oxidation of anthocyanin in this product.
- The variation of raw material prices during year.
- Knowledge of target markets in Senegal and export market (Europe and USA).

3.4 The Marketing Mix

3.4.1 Product

Calyxes

Red colour

Rich in polyphenols

Several varieties: Vimto, Koor, and others

Packed in bags

Juice and syrup

Red colour

Rich in polyphenols

Packed in glass or plastic bottles

3.4.2 Price

The price of Bissap is variable during the year. This following table compares the difference of price between the producers and the retailers in two production zones in Senegal.

Report on Marketing and Regulatory Opportunities for Africa for Group 3

Table 7: Price variation of Bissap fruit two production's zone in Senegal (FCFA)

Month	Location and Price			
	Thies		Kaolack	
	Producer	Retailers	Producer	Retailers
January	375	600	250	400
February	375	625	250	400
March	425	675	300	400
April	425	700	375	500
May	450	850	400	500
June	475	850	475	550
July	525	1050	500	600
August	625	1200	550	700
September	625	1250	600	800
October	625	1475	625	800
November	575	1125	625	600
December	475	875	550	500

From a producers' perspective, the highest price is registered between July and November. The price rise coincides with the rainy season. After the periods of bissap's crops (January- February), the prices are lowest. The price depends on production zones.

This price variation for raw materials is a potential problem for manufacturers of upgraded bissap products. Wholesale prices of beverages tend to be fixed within a narrow and competitive band whereas we can see from Table 7 that raw material prices are not consistent. The result probably means that bissap beverage businesses have to keep substantial stocks to tide them over periods of inflated price and short supply.

The main quality attributes registered are related to:

- Property and hygiene;
- Colour, taste, flavour, naturalness, hygiene, property and calibre of the bissap fruit;
- Packaging and storage conditions.

These attributes were mentioned by some actors on the products to perform the acceptability. Most of consumers (around 80 %) claimed that a good bissap fruit drinks should have a high taste, property (10%) and naturalness (7.5%). These results showed that for consumers, the obviousness of colour to bissap products made the other quality attributes more pronounced.

Globally, the Vimto variety is the more appreciated by many consumers and traders because of his colour (more red).

Price variation by products is as follows:

Calyx

CFA 400-500 per kg

Juice

CFA 500 per litre

Syrup

CFA 2000 per litre

3.4.3 Place

For all bissap products markets include: wholesalers, open markets, shops, street markets and the export market.

Discussions with value chain actors suggest that the **peripatetic street vendor** market in Senegal is very buoyant. This market consists of vendors with bicycles selling branded beverages door-to-door and at public venues like schools and hospitals. This type of vendor usually works under a franchise arrangement with payment varying depending on the volume sold.

The scale of this market in Senegal is unknown and would require further research.

3.4.4 Promotion

Calyxes

- Train farmers
- Make contact with private companies
- Create a webpage
- Use television

Juice and Syrup

- Show the nutritional value of ingredients
- Improve the hygienic quality of the end products
- Work with private businesses
- Create a webpage
- Use Television

3.4.4 People

The research revealed nothing about who are the existing and likely consumers of bissap products. Senegalese researchers should revisit this disappointing result.

3.5 SWOT

3.5.1 Bissap calyxes

Strengths <ul style="list-style-type: none"> • Easy to farm • Rich in polyphenols • Several varieties 	Weaknesses <ul style="list-style-type: none"> • Storage: colour degradation, change in taste • Poor shelf life
Opportunities <ul style="list-style-type: none"> • Large consumption • Export opportunity • Find new local markets 	Threats <ul style="list-style-type: none"> • Respect about safety quality for exportation • Competition from cheaper sources from other countries

3.5.2 Bissap syrup

Strengths <ul style="list-style-type: none"> • Red colour • Rich in polyphenols • More easy to store 	Weaknesses <ul style="list-style-type: none"> • Polyphenols destroyed during the manufacturing • Use a lot of energy
Opportunities <ul style="list-style-type: none"> • Export opportunity • Find new local markets 	Threats <ul style="list-style-type: none"> • Competition with the other fruit concentrate • Respect about safety quality for exportation

3.5.3 Bissap juice

Strengths <ul style="list-style-type: none"> • Proximity to growing areas of raw material • Manufacturing: easy processing • Rich in polyphenols • Red colour 	Weaknesses <ul style="list-style-type: none"> • Storage: colour degradation, change in taste • Poor shelf life
Opportunities <ul style="list-style-type: none"> • Large consumption • Export opportunity • Find new local markets 	Threats <ul style="list-style-type: none"> • Competition: lot of types of juices in the market • Competition from others hibiscus juices • Demand of calices teas is growing

The conclusion that can draw from these SWOTs can be resumed in this way:

For the strengths we can noticed:

- Bissap is very appreciated because of the red colour;
- Rich in anthocyanin and polyphenols compounds

For the weakness we can say:

- Degradation of anthocyanin and polyphenols in all bissap products.
- Poor shelf-life.

For the opportunities we can discern:

- High demand and export opportunity;
- Develop of new functional products like polyphenols concentrate and natural colorant

Report on Marketing and Regulatory Opportunities for Africa for Group 3

For the threats we can retain:

- Respect about international quality standards for exportation.
- Competition from others calyces and juices.

3.6 GAP Analysis

The following table resumes the market space or GAP for bissap products.

Table 8: GAP analysis for bissap products

	<i>H. sabdariffa L.</i> calyx	<i>H. sabdariffa L.</i> syrup	<i>H. sabdariffa L.</i> juice
Market 1	Wholesalers	Supermarket	Street market
Market 2	Export Market	Restaurants	restaurants
Market 3	Street Market	Hotel	Supermarket
Market 4	Shops	Shops	Hotel

About the competitive products of bissap calyces in the local market, we can mention the baobab, ginger and tamarind. For drink and syrup we have the same competing products mentioned above. In the export market, we find other varieties of *Hibiscus sabdariffa* and demand of tea calyx is growing.

The bissap products are well known and appreciated by local and foreign consumers. The red colour and nutritional compounds (anthocyanin and polyphenols) increase their consumption.

Access markets can be facilitated by improving bissap products quality. More attention should be placed on hygiene, improved traditional processing, packaging and preservation methods. For all bissap products, we need more advertising and marketing to promote their consumption.

3.7 Summary, conclusions and recommendations

Summary

The value chain analysis is a good tool to facilitate entering of bissap products in the market space. With the chain actors, we can identify the different participants on bissap products. The products' descriptions give information on all steps production. The value chain map gives much more information on actors and the link between them and the products moving in the chain value. The marketing mix informs a lot about different markets for the products and the possible marketing tools that we can use to promote them. The SWOT gives

opportunities to help making moving the bissap products to diverse markets by defining ways to improve and to exploit.

Conclusions

The bissap by products (calyces, syrup, juices and concentrate) have opportunities to be well represented in the different markets place. The competitiveness can be really improved by settling a value chain analysis that takes all the steps for markets' entering.

Recommendations

The re-engineering of bissap products can be done by:

- Improving the traditional methods of production and processing: scouring, drying, packaging and storage.
- Developing of new functional products: polyphenols concentrate for consumption, medicinal use and colorant.
- Having good knowledge on local and export market.

4. Jaabi

4.1 Introduction

Jaabi (*Ziziphus mauritiana* Lam.) is a local wild fruit tree present in Sudan and sahelian regions of Burkina Faso, Cameroon, Gambia, Guinea, Mali, Niger and Senegal. It is also widely present outside this range as an ornamental tree. The specie is also largely spread in south tropical Asia regions of India, Pakistan, Bangladesh and Sri Lanka. In India, the tree is domesticated and the fruits are 10 – 20 times bigger than African ones. The Jaabi fruit is of multipurpose uses and is widely consumed with active involvement in trade, particularly by women. Several actors are involved in Jaabi activities, from harvesting to marketing.

However, the amount of Jaabi available, the marketed and processed quantities, the destination of products, and the income of actors are not known. The present Value Chain Analysis of Jaabi is to be seen in that context. The analysis is based on information collected at different levels of harvesting, marketing and processing.

The main objective of the analysis, initiated under the framework of AFTER Project, is to study the marketing chain of Jaabi products in the northern region of Cameroon.

The specific objectives are:

- To identify and characterize the actors involved in harvesting of fruits, processing and marketing of Jaabi products;
- To analyse marketing (circuits, quantities, margins, beneficiaries);
- To identify and analyse the constraints of actors in the chain; and,
- To identify market opportunities and possibilities for improving the performance of the *Jaabi* sector.

4.2 Product description

Jaabi is traditionally processed by women into cakes called *Yaabande*. The processing methods vary from one tribe to another. This diversity is related to the cooking equipment used (leaves or small vegetable gourds) and cooking method (direct contact with fire, steam cooking or sun exposure). The main steps of this transformation are indicated in table 9 below.

Table 9: Main steps of the processing of *Jaabi* into *Yaabande*

Steps	Description
Drying of mature <i>Jaabi</i> 'grains'	The 'grains' of fresh green Jaabi are exposed to the sun
Grain selection	It is done by hand through separation of dry grains (yellow) from those infected with weevils

Report on Marketing and Regulatory Opportunities for Africa for Group 3

Pounding	It is carried out manually by women using mortar and pestle. Well dried grains are easily pounded and kernels removed.
Sieving	Manual sieving resulting in fine and homogenous flour
Mixing	The <i>Jaabi</i> flour is mixed with a small quantity of water. Optionally, a small quantity of sugar can be added: 100g of sugar/400g of <i>Jaabi</i> flour
Baking	Wetted <i>Jaabi</i> flour is moulded in ladles and the latter arranged in a steam cooker. The duration of steaming varies from 7 to 10 minutes.
Cooling	Cakes are recuperated from ladles and arranged in clean plate which is exposed to the air

4.3 Value Chain

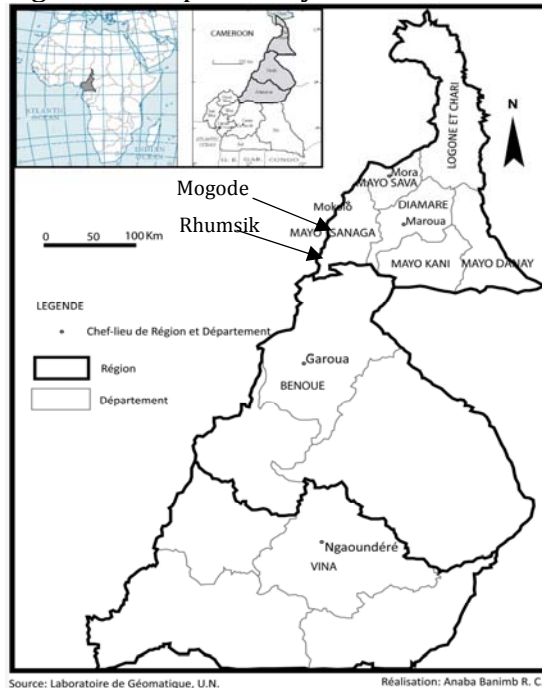
The goal, here, is to highlight mechanisms, ways and means to create value (economic, added) for the various actors of *Jaabi* chain.

4.3.1 Chain actors and functions

The *Jaabi* value chain refers to the itinerary of the product from production to consumption. It concerns all agents and operations (harvesting, distribution, processing) that contribute to the transfer of *Jaabi* from harvesting areas to its final stage. The environment of this sector influences the behaviour of actors (harvesters, traders and processors), which in turn influences the performance of the sector.

To understand these interactions, we conducted a reconnaissance visit in the area of the Far North of Cameroon. This field visit was to identify villages where *Jaabi* is exploited. The choice of villages was done with the participation of both the head of regional promotion and processing of Non Timber Forest Products (NTFP) in the Far North, and traders (wholesalers and retailers) encountered in the urban market of Maroua, the capital of the Far North region. Two villages, Mogode and Rhumsiki, have been selected in the mountainous regions of the Far North (Figure 6). The selection criteria were based on strong involvement of these populations in *Jaabi* exploitation (harvesting, sale and consumption of raw fruits). In these villages, the selection of harvesters was made randomly using the snowball method (e.g. one key informant leading to another).

Figure 6: Map of study area



In addition, Questionnaires were administered to merchants (wholesalers and retailers) in the city of Maroua. So, Jaabi wholesalers of the urban market of Maroua were identified and contacted. As for retailers, they were randomly selected. Similarly, the processors were randomly selected in the town of Maroua.

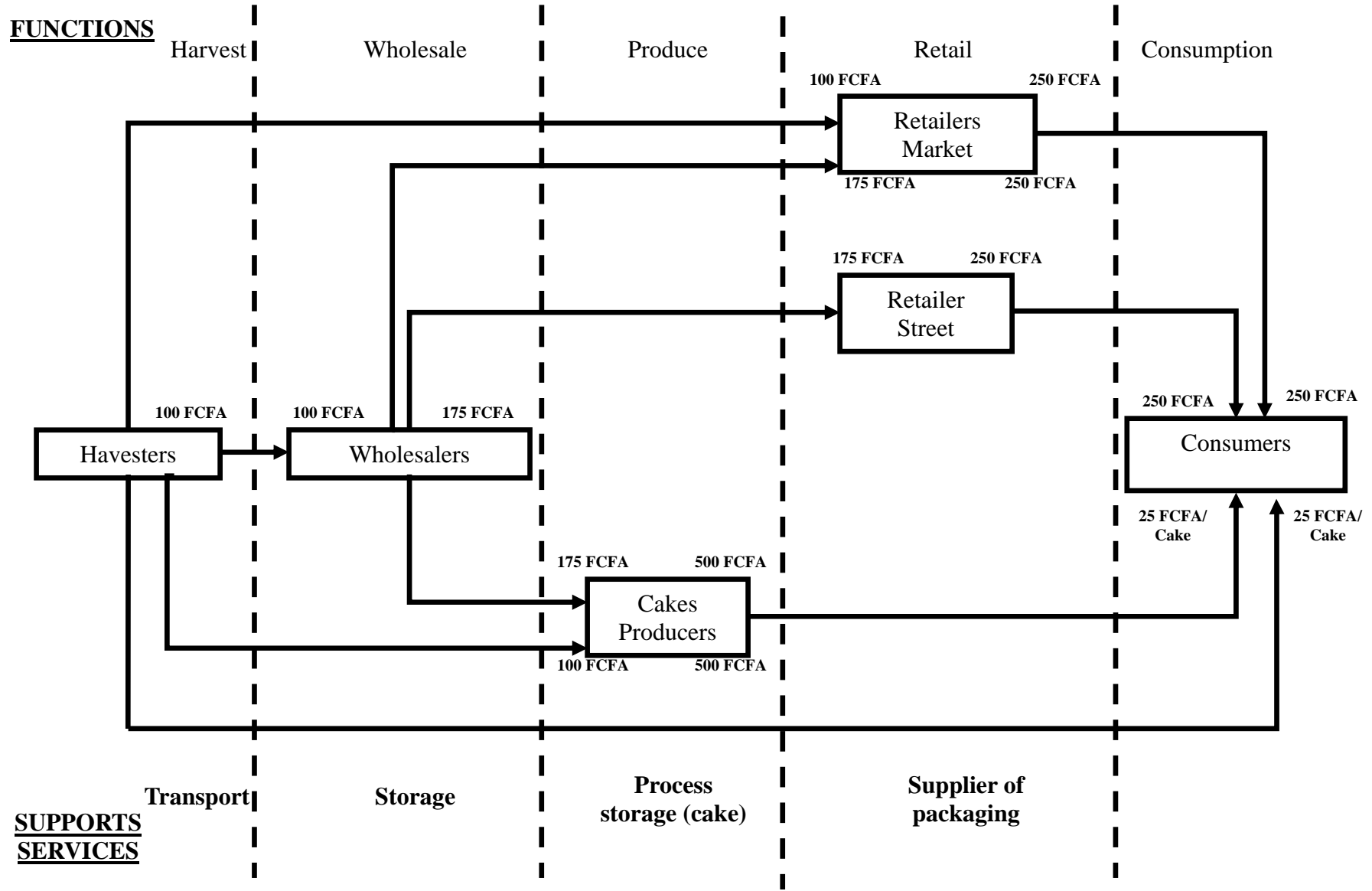
Data collection involved a total of 25 harvesters in the two villages selected. In the town of Maroua, usable responses were obtained from 8 wholesalers, 67 retailers and 6 processors. The questionnaires were administered over a period of 2 months.

SPSS version 17.0 was used to characterize the actors involved in the *Jaabi* sector. Descriptive statistics was made to estimate the dispersion of actors around certain parameters (mean and variance). The data used in these tests are from primary sources (formal investigations with actors of the chain).

A synthetic organization of the *Jaabi* value chain is shown in Figure 7.

Figure 7: Jaabi Value Chain Map

Report on Marketing and Regulatory Opportunities for Africa for Group 3



Report on Marketing and Regulatory Opportunities for Africa for Group 3

The actors involved in the marketing of *Jaabi* are harvesters, wholesalers, retailers and processors. Socio-demographic characteristics used to describe them are age, sex, occupation, status in the trade, marital status, education and household size.

Harvesters

Harvesters are men in majority. They represent 80% of the group, while women represent 20%. Harvesters are mostly adults ranging in age between 31 years and over 40 years old. The average age is 40 years. The population per household in the villages visited varies between 1 and 5 persons and the number of assets varies between 1 and 2, with predominance for the position of head of the family. In 68% of cases, *Jaabi* harvesters are married. Regarding educational level, 52% are illiterate. Since *Jaabi* harvesting is seasonal, this activity is usually considered as secondary. Otherwise, *Jaabi* harvesters are mainly farmers and/or merchants

Wholesalers

According to data collected, 75% of wholesalers are adults and 25% are youths. The average age is 44. Regarding their educational level, 62.5% read primary French school and 37.5% are illiterate. Approximately 87.5% are married. The sale of grain is the main activity of these wholesalers, in association with other foodstuffs. The sale of *Jaabi* is exercised only during the operating period of the fruit, which means between November and February or March.

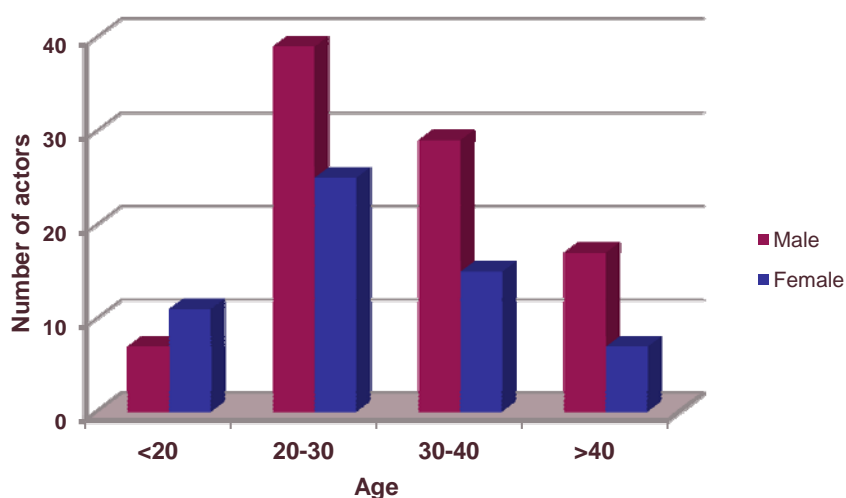
Retailers

The average age is 28 years. In this category, there are more women (64.2%) than men (35.8%). They are mostly married (71.6%), illiterate (73.1%), and their main activity being the small retail trade of foodstuffs.

Consumers

The consumers are of all age and sex, with a significant predominance of male (Figure 8). This may be explained by the fact that the *Jaabi* and *Yaabande* are usually eaten as side-dish, particularly in the afternoon, and the practice of this consumption mode is apparently common with male. Consumers choose their product primarily for its colour: red or yellowish for *Jaabi* and light chocolate like for *Yaabande*. This attribute is representative of the acceptance of the price of the product. The *Jaabi* colour is indicative of the maturity the grain, while the colour of *Yaabande* cake indicates the cooking quality. Secondary attributes governing the choice of products are texture (for *Yaabande*), taste, aspect, form and size (Ndjouenkeu & Biyanzi, 2011).

Figure 9: Sex and age profile of Jaabi consumers



Source: Ndjouenkeu & Biyanzi, (2011)

4.3.2 Market performance of Jaabi

The performance of market is evaluated in terms of profitability of each actor within the *Jaabi* channel. The indicators used in this respect are:

- Costs and marketing margins of traders
- Production cost and net incomes of *Yaabande* processors
- Margin rate (rate of return) of actors in the channel

Table 10: Cost structure for operators marketing the crude Jaabi (FCFA/Kg)

Elements of cost	Period of fruit abundance					
	Harvesters	Wholesalers	Retailers buying from harvesters	Retailers buying from wholesalers	Processors buying from harvesters	Processors buying from wholesalers
Purchase price		100	100	175	100	175
Miscellaneous charges		10	15	25	10	20
Transit charges		0	0	0	0	0
Cost price		110	115	200	110	195
Selling price	100	175	250	250		
Margin		65	135	50		
Margin as% of sales price		37%	54%	20%		
	Period of fruit scarcity					
Purchase price		180	180	350	180	350
Miscellaneous charges		15	25	30	15	25
Transit charges		0	0	0	0	0
Cost price		195	205	380	195	375
Selling price	180	350	750	750		
Margin		155	545	370		
Margin as % of sales price		44%	73%	49%		

Report on Marketing and Regulatory Opportunities for Africa for Group 3

The pounding cost of a bag of 25 kg of *Jaabi* grains amounted to FCFA 250 and screening costs to FCFA 350. These two operations yield 11.36 kg of *Jaabi* flour. The cost of firewood for its processing into *Yaabande* is 200. The unit selling price of cakes varies between 25 FCFA to 50 FCFA.

Processor margins

Processor margins vary depending on the purchase price of *Jaabi* grains, depending on whether they are purchased from the harvesters or from the wholesalers. Indeed, *Jaabi* processors realize higher margins than wholesalers. These margins also vary depending on the abundance or scarcity of the fruit. In periods of grains scarcity, processor margins amounted to 760 FCFA/kg as against 155 FCFA/kg for wholesalers.

4.3.3 Illustration of the *Jaabi* value chain

The marketing of *Jaabi* and *Yaabande* is prevalent only in the northern region of the country. *Jaabi* is classified as non-timber forest product. The tree grows as a wild plant, is not domesticated and there exist no specialist in its cultivation. Actors involved in the exploitation of fruit from farm to consumer have specific functions in the channel (Table 11)

The marketing of *Jaabi* and *Yaabande* is prevalent only in the northern region of the country. *Jaabi* is classified as non-timber forest products. The tree grows as wild plant, is not domesticated and there exist no specialist in its cultivation. Actors involved in the exploitation of fruit from farm to consumer have specific functions in the channel (Table 11)

Table 11: Typology and role of actors involved in the marketing of *Jaabi*

Actors	Role	Discussion
Small scale producer	- Post harvest ; - Storage ; - sell as retailer in local market and to the wholesalers.	- Localization: Northern region of Cameroon; - More men than women; - No farmers.
Large scale producer	- Wholesalers; - Sell as wholesalers and as retailers.	Storage waiting for price growth up.
Farmer/Trader	- No farmers; - Traders: - Small scale producer; - Large scale producer.	No private fields of <i>Jaabi</i> .
Market and street sellers	- Door to door sellers is not existing	Products are sold on the market place and in the street.
Buying agent	None existing	Two types of actors: small and large scale producers.

Source: AFTER Research

Five functions are identified:

- Harvesting of *Jaabi* grains in the savannah;

Report on Marketing and Regulatory Opportunities for Africa for Group 3

- Wholesale of grains to wholesalers and processors by harvesters in villages;
- Production of cakes by the processors in villages and towns;
- Retail sale of grains to consumer, and also to traders and processors who cannot afford to visit harvest areas;
- Consumption of and *Jaabi* grain and cake purchased by individuals on the street or in markets.

Support services are associated to these functions. The main services are:

- Transport of *Jaabi* grains from harvesting areas to villages and towns;
- Storage of grains, mainly by wholesalers;
- Conservation process of cakes by the processors;
- Supply of packaging by retailers (cups, plates, plastic bags).

The consideration of the functions of actors, of support services and of purchase prices associated with the organization of the channel, leads to *Jaabi* Value Chain Analysis (Figure 7).

4.4 The Marketing Mix

In order to expand production and marketing of *Yaabande* at national level, important details to consider in terms of the marketing mix variables should be clarified.

In general, two types of products can be marketed: the cakes with sugar and sugar-free cakes. In terms of extrinsic characteristics, these cakes should be attractive but also provide a crisp appearance. Two types of packaging can be offered (4 parts packages and packages of 8 pieces). Selling prices will of course vary depending on the packaging. To encourage consumers to test and possibly buy the product, promotional activities are essential. These actions include, for example, insertion of advertisements in the mass media (radio, press, TV), going door to door. Concerning the distribution, it would be possible to diversify the products offered. Information about the choice of the marketing mix elements are reflected in Figure 10 below.

Figure 10: elements of the marketing mix for marketing *Yaabande*

Product	Snack food – with or without sugar Unique taste and flavour Beautiful appearance (gold colour) Two types of packaging (4 pieces and 8 pieces) Different cake forms •□■
Price	100 CFA/4 pieces 175 CFA/8 pieces
Place	Street Shop Baker (instant mix <i>Jaabi</i>) Restaurant (new package) Supermarket
Promotion	Mass media communication (TV, Radio, flyers)

Report on Marketing and Regulatory Opportunities for Africa for Group 3

	Sponsoring (public place, stadium, school, supermarket) Door to door seller Internet
--	--

Source: AFTER Research

4.5 SWOT

The goal here is to highlight the strengths, weaknesses, opportunities and threats (SWOT) for the value chain of *Jaabi*. This analysis/diagnosis is mainly focused on the *Yaabande* local market. Table 12 summarizes these elements.

Yaabande, cake resulting from the processing of *Jaabi*, is known for its unique taste and originality of its flavour. In addition to its attractive colour, it is economically accessible. This cake is produced at small-scale by women. The processors face a problem of seasonality of the fruit and the amount of fruit harvested is not known. Since Incomes derived from the processing are not negligible, the *Yaabande* market seems buoyant. It appears thus interesting to develop this niche. Some aspects of this development may be the commercialization of this cake in all cities in Cameroon, incitation to the production of *Jaabi* flour and creation of small *Yaabande* bakeries, and even development of new form of *Yaabande* consumption.

Jaabi and *Yaabande* demand is growing up. This involves the management of constraints related to the seasonality of the fruit and to the amount of product available.

Table 12: Summary of strengths, weaknesses, threats and market opportunities of *Yaabande*

<p>Strengths</p> <ul style="list-style-type: none"> • Unique taste and flavour • Beautiful appearance • Low price for all social level 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Maximum harvested quantity unknown • Short period of supply • Available only in the afternoon • Low quality of production
<p>Opportunities</p> <ul style="list-style-type: none"> • Generalize the commercialization in Cameroonians in towns • Small bakery • To encourage consumption throughout the day (not just in the afternoon) – promote it as a breakfast food 	<p>Threats</p> <ul style="list-style-type: none"> • <i>Jaabi</i> fruits are only located in the North of Cameroon • The production is from November to March

Source: AFTER Research

Assumptions:

Demand for *Jaabi* is growing.

4.6 GAP Analysis

Given the increasing demand of Yaabande, the valorisation of this niche involves the creation of a business. The products could be marketed in the street or in retail outlets such as shops, restaurants, supermarkets and bakeries (Table 13). The use of these channels involves decisions on elements of the marketing mix.

Table 13: Gap analysis of Jaabi cake

	Jaabi snack food
Street	By sellers according contract with the company (sell-return, % selling)
Shop Restaurant Supermarket Bakers	Supply directly by the company

4.7 Summary, conclusions and recommendations

Summary

Zizyphus mauritiana is a species whose fruit is highly valued by the people of the northern part of Cameroon. The fruit can be consumed directly or processed in form of cakes (*Yaabande*). This processing activity involves women throughout the campaign.

Conclusions

The study showed that the market is structured in *Jaabi* harvesters, wholesalers, retailers and processors. Sellers are primarily men for the raw dry fruits, while the processed products involve exclusively women. The quantities introduced in the market, currently not quantifiable, vary according to period and actors. *Jaabi* grains and cakes are sold only in the local market.

The market of raw or processed *Jaabi* is not structured. There is no association or group among the actors. There is also no market transparency. Information circulates poorly, the actors have no information on prices and quantities available.

The processing of the fruit is painful (pounding). Processing methods are rudimentary and traditional. The flour obtained from crude *Jaabi* is low. Therefore, women use a greater amount of fruit to produce *Yaabande*. Profits of women in the processing of *Jaabi* into *Yaabande* are substantial.

Recommendations

Report on Marketing and Regulatory Opportunities for Africa for Group 3

From the above findings, we can make the following recommendations:

- The availability of Jaabi grains is low. To increase this availability, creation of Jaabi real estate's is required. For this purpose, the development of partnership arrangements between public, private and other stakeholders is of paramount importance.
- Since the yield of flour from grain is low, it is necessary to improve it. This involves the introduction of improved varieties in the production system. It is also important to reduce post-harvest losses and to improve the system of harvesting and transport.
- Since Jaabi processing is a source of income for women in the northern part of the country, the promotion and development of this activity requires access to credit. The development of improved processing technology is needed to reduce the hardness and improve the quality of the product.

There is no reliable data on the economic potential and production figures. The organization of actors would allow consultation, decision and respect of common action in relation to prices and conditions of entry and market exit.

Annex 1: Abbreviations and acronyms

AAFEX	African Association of Exporting Companies
ADPME	Agence de développement et d'encadrement des Petites et Moyennes, Senegal
AFTER	African Food Tradition Revisited by Research
ANSD	Agence Nationale de la Statistique et de la Démographie, Senegal
ASEPEX	Agence sénégalaise de promotion des exportations
ASN	Association Sénégalaise de Normalisation
CFA	<i>Communauté Financière Africaine</i>
GIE	Economic Interest Groups
HACCP	Hazard Analysis and Critical Control Points
ITA	Institut de Technologie Alimentaire, Senegal
kg	Kilograms
MT	Metric tonne
SWOT	Strengths, Weaknesses, Opportunities and Threats

Annex 2: List of interviews conducted

Baobab

1- GIE SHIVET FRUIT DE MBOUR Quartier Escale près du crédit mutuel Mbour Sénégal Tel: 00 221 77 551 73 20 ou 00 22133 957 40 60, Email: shivetfruits@hotmail.com

2- GIE SAFNA DE KAOLACK. HLM Bongré Villa N° 149 Kaolack Sénégal Tel : 00 221 77 616 67 74 ou 00 221 70 106 77 36 ou 00 221 33 941 93 72 Email : fatoumataniagneba@yaoo.fr

3- GIE SAFNA PLUS DE GRAND YOFF DE DAKAR Quartier Grand Yoff Lot N°11 Jeddah BP : 13069 Dakar Sénégal Tel. 00 221 77 541 06 00 ou 00 221 33 827 32 15

4- ESTEVAL AA SARL BP 10507 Dakar liberté Sénégal TEL/FAX : +221 33 825 22 52 Email: esteval2a@esteval.net; www.esteval.net

5- FREE WORK SERVICES SARL. 29 rue Abdou Karim Bourgi Tél. : (221) 33 821 18 67 ou (221) 33 827 39 86 (fabrique), Paris : 01 46 71 00 68 Email : kumba@sentoo.sn ou maxdiack@gmail.com ; www.kumba.sn

LISTE DES PERSONNES INTERROGEES

Thiaka Diouf
Sylvie Diéme
Bintou Diagne
Fatou Touré
Mbayang Diop
Sadiou Fall
Diodjo Fall
Nanay Ndiaye
Oumou Khairy Sow
Khady Gueye
Adiouma Sarr
Soukeye Séne
Birama Fall
Serigne Lo

References

Baobab

Cisse, M., & Ndiaye, C. (2010). *Literature review and Background information of Baobab fruit pulp*. Dakar: African Food Tradition Revisited by Research, AFTER Project (KBBE 245025).

Bissap

Cisse M, Dornier M., Sakho M., Diop C.M., Reynes M., Sock O (2009). La production de bissap (*Hibiscus sabdariffa*) au Sénégal *Fruits*, vol. 64, p. 111–124

Dornier M., Sakho M., Diop C.M., Reynes M., Sock O (2009) Le bissap (*Hibiscus sabdariffa* L.) : composition et principales utilisations *Fruits*, vol. 64, (3) p. 179–193

Jaabi

Camara T., Kedougou S. (2004), Rapport de la formation sur la transformation du Jujube (*Ziziphus Mauritiana*), Programme agriculture-Gestion des ressources naturelles « Wula Nafaa » soumis par International Ressources Group, Contrat n° 685-C-00-03-00008-00, 19p.

Ndjouenkeu R., Biyanzi P. (2011). *Jaabi* production, processing, trading and consumption systems in Cameroon. Survey report. AFTER Deliverable 1.1.2.1-3. 22 p.